



First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

"An Indispensable Factor." Who would, outside the inner ring of the aviation world, eighteen months ago have cared to subscribe to the suggestion that by this time the Field-Marshal Commanding-in-Chief of the British Army in France would, in an important and historic despatch, state emphatically that "the Royal Flying Corps is becoming more and more an indispensable factor in combined operations"? Those who had intimate knowledge of the progress and unlimited possibilities of aviation, never had a doubt as to the important part which aircraft were to play in any general conflict. But that every iota of prejudice and opposition to their use should, within ten months of the commencement of war, not only have been entirely wiped away, but that the art should have risen to the pinnacle of vital importance which it has now attained, was possibly more than even the most sanguine amongst the band of pioneers and advocates of the new industry could have hoped for. Never in all the surprises which science has "sprung" upon the world has an innovation of so revolutionary a character come into power in so dramatic and sweeping a manner as aviation. It seems but the other day that to mention aviation meant with the general run of the public to either be

frowned down or smiled upon with an interested sort of curiosity, of about the same value as might be attached to witnessing some startling new set piece of fireworks by Brock.

That flying could have any merit beyond amusement for a holiday crowd with nothing better to do, was entirely foreign to the mind. It can therefore be now well understood why those who fought so hard in saving this country from Imperial suicide, by backing up their faith in aviation's future, should now be honoured by the country at large. And these should include not only the early designers and manufacturers, but also those in authority, more or less high in rank, who saw eye to eye with the civilian enthusiasts and worked with all their power to bring into practical politics, the power which they saw only required encouragement, to revolutionise certain methods of warfare. Would that Mr. G. H. Wells' 10,000 aeroplanes could have materialised in some period measurable by weeks. What a different tale might even now be told of the Allies' work in the immediate future. But it is not the age of miracles, and we must be content to do the best we can with the more limited material and personnel which it is possible to make available as the next few months pass away. In the meantime from every official source come day by day unequivocal tributes to the invaluable aid which flying officers and their machines have rendered to the commanders in the field. Not only does the Commander-in-Chief refer in one long paragraph in his despatch to their indispensable help; to their improvement both in methods and in the technical material employed; the ingenuity and technical skill displayed by the officers of the R.F.C. in effecting this improvement; to the frequency of combats—some 60 in number since the previous despatch—in the air, in which not one British aeroplane has been lost, although most of the fights almost invariably take place over or behind the enemy lines, but Field-Marshal French elsewhere in the despatch, again emphasises the fact that it was the aircraft that gave the first warning to the troops of the start of the abominable asphyxiating gas which was distributed from the German trenches between Langemarck and Bixschoote, at the commencement of the second battle of Ypres. He also draws attention to specific instances of the assistance of the flying officers in obtaining direct hits on German guns, and points out especially the direct value of the Corps' work in preventing a great deal of aerial reconnaissance by the enemy, besides actually destroying numbers of hostile aeroplanes.

The generous reference in the despatch to the assistance given by the R.F.C. by the French military authorities, particularly General Hirschauer, Director of the French Aviation Service, and his assistants, Col. Botticaux and Col. Stammier, emphasises the wholehearted co-operation which exists between our French allies and ourselves in the prosecution of this war for civilisation. The tribute to our allies' help very emphatically acknowledges the difficulties which exist in keeping up the necessary supplies of material at the front for our flying forces, and more than ever helps us to appreciate the fatuousness of the suggested huge flights of aeroplanes, &c., to be brought into being within a period of a few weeks.

Again it is entirely due to the work of our aeroplanes that the final quietus has been given to the Königsberg light cruiser, away up the river Rufiji in East Africa, where the German pirate has been lying low since October last. By no other means could this cruiser have been successfully disposed of by our river monitors. Our own cruisers could not get up the river to the jungle-hidden Königsberg, and it was only by the aeroplanes directing the fire of the monitors that the whole of the guns of the German vessel were ultimately silenced and the ship finally rendered a total wreck. So closes one more glorious chapter in the history of the great new service, which before many years is destined to compel the remodelling of many fixed ideas as to the most economical mode of providing the best antidote to any war preparations which may be inaugurated by other world powers.

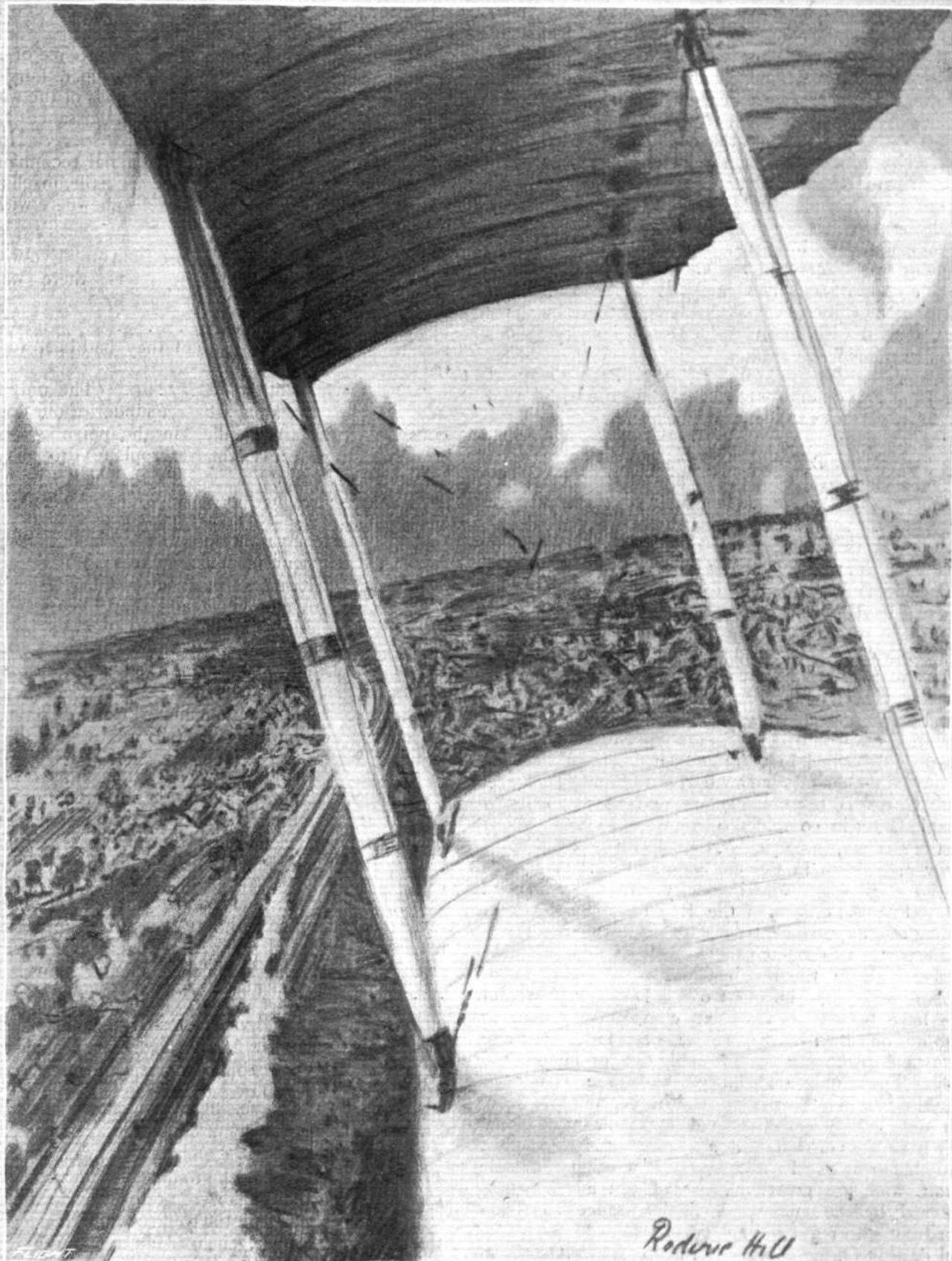
National Insurance Against Damage by Aircraft. It is extremely gratifying to us that at last a National Insurance scheme has been brought into being by the Government, which, subject to any minor modifications which it may be deemed desirable to incorporate, appears to have in it all the elements of success. As the readers of *Flight* are aware, our advocacy of such a scheme, whether in the form of National liability, or under some flat rates, as proposed in the new Bill, has been persistent and consistent. As early as October, last year, we pointed out the enormous business which was being raked in by the underwriters, as a result of the Zeppelin scare which had taken hold of a section of the more timid inhabitants of these Isles. How far the flames of that scare were fanned by a carefully worked campaign in the Press, both editorially and through the advertisement columns, it is not necessary to now discuss. We presented our views pretty plainly of this side of the Zeppelin visits, at the time, and we submitted that in any event the circumstances were such that provided the Government could not see their way to assume entire liability in an Imperial way, then it was urgent they should at least formulate some scheme of insurance whereby the enormous premium profits which were going into private pockets should be diverted into the nation's Exchequer to serve as a help towards the growing expenditure brought about by the war. It was, however, left to *Flight* to continue to plough her lonely furrow, and that we were justified in continuing our demands for official action is, we think, more than upheld in the Bill which is going through this week, covering in its scope all the ground, which we have held from the first should be turned into either a national liability or a national asset. As the latter it is as welcome as the former, as there must be but very few who will not now willingly pay their respective moderate premiums towards ensuring immunity from the very remote risk of their being the recipients of the haphazard attentions so promiscuously distributed by the Zeppelins in their cut and run visits,

especially in view of the fact that they will know that their individual premiums will now be going towards reducing, even if in a very moderate way, the direct cost of the war to the taxpayers. No doubt there were good reasons for "sitting on the fence" by the general press, not least perhaps the possible loss in these lean times of advertisement revenue from those who were exploiting the fears of the community, which the introduction of such a measure as is now going through would involve.

Although opinions will, no doubt, differ as to some of the rates of premiums to be charged, on the whole we gather that the Bill meets with general approval. Private insurers will be able to cover all aircraft risks at the low cost of 2s. per cent. per annum, whilst farmers and owners of other buildings will be very little worse off in the charge made to them. Probably the section of the community which will reap most benefit from the scheme is the importer and trader, who hitherto has had to pay £1 to 30s. per cent. per month on goods whilst lying at the docks. In most cases there was no getting away from this charge, as practically no bank would look at the security without the air-risk being reasonably covered. By reason of the Tariff Insurance Companies keeping outside this class of business traders were perforce driven into the hands of the underwriters, who, for a consideration which was weekly growing more onerous as their commitments bulked up, were willing to turn an honest penny, and thus help towards the trade of the country running along smoothly. We do not in the least blame the underwriters. Quite the reverse. All credit is due to them for the way in which as usual they took up such a business risk. They naturally had to protect themselves, and with such a novel and unknown quantity to provide against they no doubt were not too particular on the side of moderation in premium. Lloyd's members have therefore had a very fine run for their money, and have probably had the cream of the business, so they have nothing to grumble about. Moreover, there is nothing to prevent them still taking up as much further business in the same direction as hitherto, with just the one difference that they are now up against a competitive tariff. They will probably have to undercut to secure anything like a remunerative share of the insurance business. No doubt the flat rates of the Government will open the way for underwriters to cater for some classes of less inflammable merchandise, but on the whole, taking one thing with another, we fancy the general run of insurer will prefer the backing of the Government to any guarantee from private enterprise.

All the big insurance companies who have hitherto held aloof from aircraft risks for well-known reasons, should benefit considerably by the Government measure, as, without any risk whatever to themselves, the whole scheme is practically to be carried out by means of their marvellous organisations, although it is true the Government can be dealt with direct by those preferring that procedure. This is also in accordance with the suggestion put forward in *Flight*, and we congratulate the President of the Board of Trade upon the admirable way in which the whole scheme has been elaborated, whilst maintaining the greatest simplicity in detail.

The full text of the statement by Mr. Runciman in Parliament is given in *Flight* on page 517, this week, together with the table of premiums which it is proposed to charge. We have little doubt but that the Bill as submitted will pass the House without any material alteration, and, as the President of the Board of Trade has stated, there is no reason why the scheme should not be in full operation within a week from date.



THE COUNTRY, AS SEEN FROM AN AEROPLANE.—View of Mill Hill, at an altitude of 1,000 ft. from a 50 h.p. Gnome-engined Wright biplane. From a sketch actually made during the flight by the artist, Mr. Roderic Hill. Below can be seen the town of Mill Hill and the Midland Railway curving away into the distance. Mr. Roche-Kelly, the very popular exponent of the graceful Wright machine, was Mr. Roderic Hill's pilot.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

IN the despatch dated June 15th from Sir John French, published in a special supplement to the LONDON GAZETTE on Sunday night, there was the following tribute to the work of the Royal Flying Corps:—

"Following a heavy bombardment, the enemy attacked the French Division at about 5 p.m. [on April 22nd], using asphyxiating gases for the first time. Aircraft reported that at about 5 p.m. thick yellow smoke had been seen issuing from the German trenches between Lange-marc and Bixschoote. . . .

"During the whole of May 4th the enemy heavily shelled the trenches we had evacuated, quite unaware that they were no longer occupied. So soon as the retirement was discovered the Germans commenced to entrench opposite our new line and to advance their guns to new positions. Our artillery, assisted by aeroplanes, caused him considerable loss in carrying out these operations."

[The following occurred in Sir Herbert Plumer's report to Sir John French of the fighting during the withdrawal after the gas attack round Ypres.]

"With the assistance of the Royal Flying Corps, the 31st Heavy Battery [on May 11th] scored a direct hit on a German gun, and the North Midland Heavy Battery got on to some German howitzers with great success. . . .

"The work performed by the Royal Flying Corps has been invaluable. Apart from the hostile aeroplanes actually destroyed, our airmen have prevented a great deal of aerial reconnaissance by the enemy, and have registered a large number of targets with our artillery."

"I have once more to call your Lordship's attention to the part taken by the Royal Flying Corps in the general progress of the campaign, and I wish particularly to mention the invaluable assistance they rendered in the operations described in this report, under the able direction of Major-General Sir David Henderson. The Royal Flying Corps is becoming more and more an indispensable factor in combined operations. In co-operation with the artillery, in particular, there has been continuous improvement both in the methods and in the technical material employed. The ingenuity and technical skill displayed by the officers of the Royal Flying Corps in effecting this improvement have been most marked."

"Since my last despatch there has been a considerable increase both in the number and in the activity of German aeroplanes in our front. During this period there have been more than sixty combats in the air, in which not one British aeroplane has been lost. As these flights take place almost invariably over or behind the German lines, only one hostile aeroplane has been brought down in our territory. Five more, however, have been definitely wrecked behind their own lines, and many have been chased down and forced to land in most unsuitable ground. In spite of the opposition of hostile aircraft, and the great number of anti-aircraft guns employed by the enemy, air reconnaissance has been carried out with regularity and accuracy."

"I desire to bring to your Lordship's notice the assistance given by the French military authorities, and in particular by General Hirschauer, Director of the French Aviation Service, and his assistants, Colonel Bottiaux and Colonel Stammler, in the supply of aeronautical material, without which the efficiency of the Royal Flying Corps would have been seriously impaired."

In the despatch dated July 3rd from an "Eye-witness" present with the British General Headquarters it was stated:—

"June has passed without any occurrence of importance, and the uneventfulness of major operations on our front have been matched by the dullness of the weather, which has interfered with aerial reconnaissance

"On Thursday, the 1st of July, Notwithstanding the unfavourable weather, aerial reconnaissance was carried on by both sides, and a hostile machine was brought down by our guns and fell somewhere within its own lines."

In the despatch dated July 9th from an "Eye-witness" present with General Headquarters there was the following:—

"On Sunday (4th inst.) The German aircraft also were busier than they had been for some days. . . .

"On Tuesday 6th The only points worthy of remark along the remainder of our line were considerable hostile shelling in the neighbourhood of Festubert, where a German aeroplane dropped some bombs. . . .

"It is the custom, on occasion, for certain reasons, for the officers of the Royal Flying Corps on aerial reconnaissance or observation duty to send back messages by means of light signals. This practice is not viewed with favour by the Germans—probably because its results have been more than annoying—and they have evolved the following method for putting a stop to it, exploiting the fact that it is sometimes very difficult for those below to recognise whether an aeroplane at a high altitude is friend or foe.

"If they see a British machine hovering overhead and using these daylight flares, some of their guns at once open fire on areas or targets in our lines which have already been carefully registered. The object of this procedure is by the sequence of the fire of their guns after the exhibition of lights from our aeroplane to make those in charge of our anti-aircraft armament imagine that the aeroplane they see is a hostile machine observing for the German artillery, and to shell it.

"Well thought out as is the ruse, it has only to be seen through once to be rendered innocuous for the future, but the underlying intention of employing our guns to destroy our aeroplanes is distinctly meritorious"

Referring to the visit of Mr. Asquith and Lord Kitchener on the 6th inst., "Eye-witness" said:—

"It was a disagreeable day for sight-seeing, as a high wind was blowing and clouds of dust hid the roads and rose from every patch of bare ground; but in another way the weather was suitable, since its squally nature rendered the presence overhead of spying aeroplanes very unlikely. On this day the tour was not of a processional character, and the roads were not lined with troops."

"After inspecting on the route certain units performing their ordinary duties, such as an ammunition park, a travelling workshop, and an aerodrome, the party proceeded to the neighbourhood of Ypres."

In the announcement issued by the Admiralty on Monday regarding the destruction of the German cruiser "Königsberg" in the Rufiji river, German E. Africa, by the river monitors H.M.S. "Severn" and H.M.S.

"Mersey," there were the following references to the assistance rendered by aeroplanes :—

"The position of the 'Königsberg' was accurately located by aircraft, and as soon as the monitors were ready the operations were begun. On July 4th . . .

"As the 'Königsberg' was surrounded by jungle the aeroplanes experienced very great difficulty in 'spotting' the fall of the shot. She was hit five times early in the action ; but after the monitors had fired for six hours the aeroplanes reported that the 'Königsberg's' masts were still standing . . .

"In order to complete the destruction of the 'Königsberg' the Commander-in-Chief ordered a further attack on July 11th, and a telegram has now been received from him stating that the ship is a total wreck."

In the *communiqué* issued in Paris on Saturday afternoon it was stated :—

"Our aeroplanes bombarded yesterday the railway stations of Arnaville and Bayonville as well as the military huts at Norroy. Twenty-two bombs and 1,000 darts were dropped."

In Sunday afternoon's *communiqué* there was the following :—

"One of our airmen this morning brought down a German Aviatik in the vicinity of Altkirch (Alsace), the enemy machine falling in sight of our lines."

In a note issued in Paris on Saturday dealing with the French operations in the Dardanelles from June 9th to 24th it was stated :—

"The men also warmly cheered the continually passing aeroplanes, which, in spite of the small number of aviators available, made eighteen reconnaissances a day between sunrise and sunset, that is to say, fifty hours of flight.

On June 22nd, our air squadron added another exploit to those of the previous day by regulating the fire of our howitzers on a German Albatros, which had fallen on the field after a fight disastrous to itself with a British aeroplane."

In Tuesday afternoon's French official *communiqué* it was stated :—

"An aerial squadron, consisting of thirty-five aeroplanes, despite a wind blowing at the rate of 18.50 metres, this morning flew over and threw bombs on the strategic railway installed by the Germans at Vigneulles-les-Hattonchâtel."

"This station serves both the region of the Colonne trench and that of the Forest of Apremont. Very important supplies of every kind, and particularly munitions, were concentrated there."

"Our aviators threw 171 24-centimetre bombs on these stores, and caused several outbreaks of fire."

"Our aeroplanes returned safely, although they were vigorously shelled."

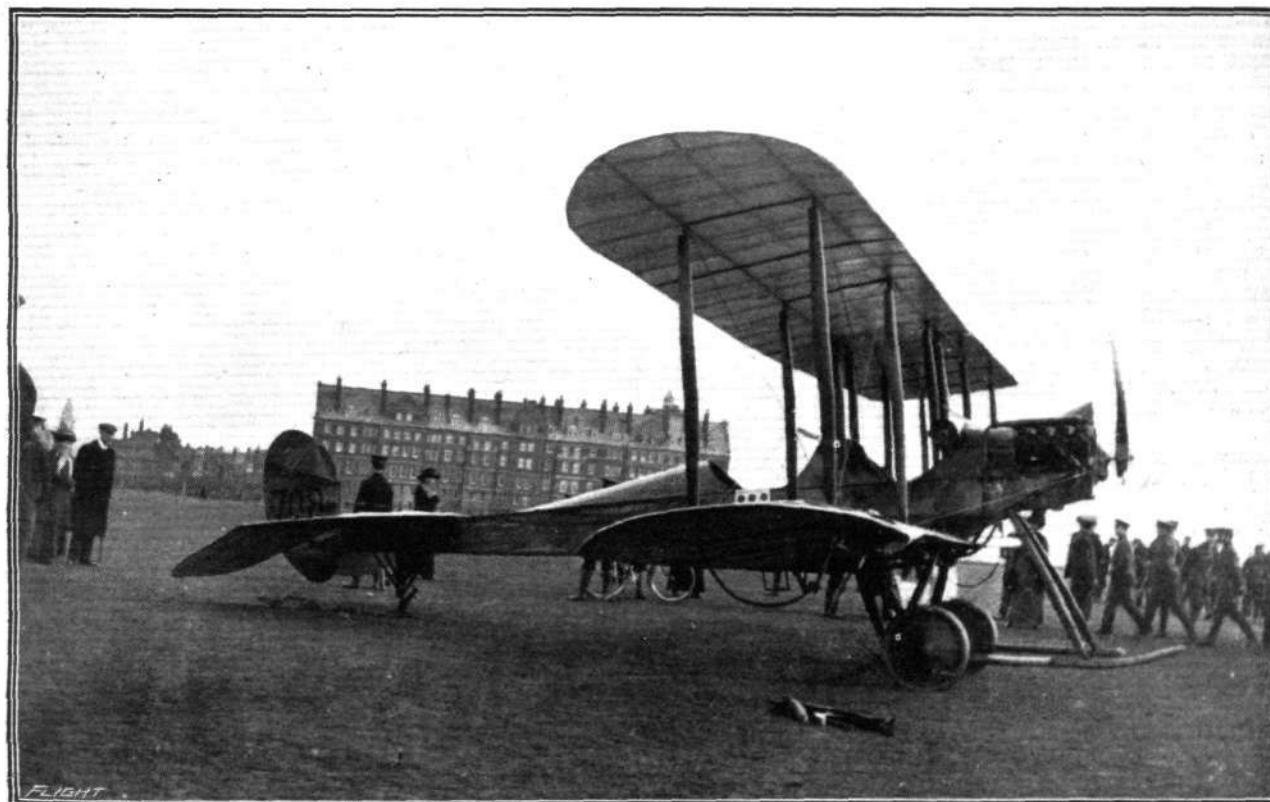
In Wednesday evening's *communiqué* there was the following :—

"Our flying corps, continuing its bombing raids, yesterday succeeded in effecting great destruction at the station of Libercourt, a military junction between Douai and Lille. A squadron of twenty aeroplanes dropped on the buildings and the lines twenty-four 3½-in. and sixteen 6-in. shells."

"The gun-aeroplanes which accompanied the squadron bombarded a train which had stopped between two stations and obliged an Albatros machine to land."

In the *communiqué* from the Russian General Staff, issued in Petrograd on July 9th, it was stated :—

"In the Pissa valley we captured a hostile aeroplane."



Photograph by Miss M. Money.

A snap on Folkestone Leas last February, after the return of the warplane from a scouting expedition during which the pilot had sighted an enemy submarine. Note the broken wing and propeller.

In the *communiqué* from the Italian Army Headquarters, issued in Rome on the 7th inst., it was stated:—

"On the night of the 6th inst., our airship bombarded effectively an important railway junction north of Opema (? Opecina)."

"On the morning of the 6th a flotilla of our aeroplanes succeeded in throwing a large number of bombs on the Austrian aviation ground near Aisovizza, east of Gorizia, causing fires."

"Another aeroplane threw bombs on the station of Nabresina. The aviators, who were the object of artillery and machine-gun fire, returned safely."

In the *communiqué* issued on July 9th, it was stated:—

"One of our aeroplanes bombarded from a height of less than 100 metres the railway station of Nabresina, accurately hitting its mark."

In a *communiqué* issued in Rome on the 13th it was stated:—

"Yesterday at daybreak a squadron of our aeroplanes

effectively bombarded from a height of about 600 metres a large enemy camp in the neighbourhood of Gorizia."

Sir J. Roper Parkington, Consul-General for Montenegro, on the 8th received an official telegram from Cettinje which contained the following:—

"On the 4th and 5th inst. the Austrians vigorously attacked the Montenegrin positions near Grabovo, but all assaults were repulsed; the attacking forces were assisted by machine guns from several Austrian aeroplanes, which flew over the entrenchments held by our troops."

The following official *communiqué* was issued by the Serbian Press Bureau on Tuesday:—

"Yesterday two enemy aeroplanes flew over Belgrade and suburbs. Two bombs were dropped on a quarter of the town where there were no military installations, one in the middle of the street, the other on a house. No one was injured. Two other bombs were dropped on Bagniza, near Belgrade."

THE BRITISH AIR SERVICES.

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

The following appeared among the Admiralty announcements of the 8th inst.:—

Temporary Lieuts. A. L. Rogers, F. W. Belt, and G. Errington all promoted to temporary Lieutenant-Commanders, with seniority of July 7th.

Temporary Sub-Lieuts. H. D. Seale, C. N. R. Wright, A. H. Ruston, the Hon. John R. B. Balfour, and F. W. M. Moore all promoted to temporary Lieutenants, with seniority of July 7th.

Temporary commissions as Lieutenants (R.N.V.R.) have been granted to the following: O. W. de Chair, with seniority of July 6th; C. C. L. Ionides and A. G. Ionides, with seniority of July 7th.

The following Chief Petty Officers have been granted temporary commissions as Sub-Lieutenants (R.N.V.R.), with seniority of July 7th: C. Wilkinson, H. W. Blake, J. M. Robertson, H. G. Sabiston, J. J. Barnard, and S. F. B. Smith.

The following appeared among the Admiralty announcements of the 10th inst.:—

The following have been entered as Probationary Flight Sub-Lieutenants, for temporary service: H. G. Ford (temporary Sub-Lieutenant, R.N.V.R.), with seniority of July 8th; G. Preen, N. G. Stewart-Dawson, and W. S. Wilson, all with seniority of July 18th.

Temporary commissions have been granted with seniority as follows: J. E. Coates and M. W. Duncan, both as Lieutenants (R.N.V.R.), with seniority of June 12th and July 9th respectively; D. R. Verey as Sub-Lieutenant (R.N.V.R.), with seniority of July 5th; G. R. Moody and R. H. Horniman both as Sub-Lieutenants (R.N.V.R.), with seniority of July 9th.

The following appeared among the Admiralty announcements of the 12th inst.:—

W. J. S. Lockyer and J. H. Spottiswoode granted temporary commissions as Lieutenants R.N.V.R. To date July 10th.

S. T. Panther granted a temporary commission as Sub-Lieutenant R.N.V.R. To date July 10th.

Temporary Lieut. M. Birkbeck, R.N.V.R., and G. Smethurst entered as Probationary Flight Sub-Lieutenants, for temporary service. To date July 9th and July 18th respectively.

The following appeared among the Admiralty announcements of the 13th inst.:—

F. Reeves and D. Broad entered as Probationary Flight Sub-Lieutenants, for temporary service, and appointed to the "President," additional, for R.N.A.S. To date July 18th and July 9th respectively.

Royal Flying Corps (Military Wing).

The following appeared in a supplement to the LONDON GAZETTE issued on the 7th inst.:—

Supplementary to Regular Corps.—William G. B. Williams to be Second Lieutenant (on probation). June 12th, 1915.

The following appeared in a supplement to the LONDON GAZETTE issued on the 8th inst.:—

Flying Officers to be Flight-Commanders.—Lieut. Guy L. Cruikshank, the Gordon Highlanders, and to be temporary Captain whilst so employed; June 21st, 1915. June 24th, 1915: Lieut. Arthur A. B. Thomson, Special Reserve, and to be temporary Captain whilst so employed. Major Frederick W. Richey, R.A.

Flying Officers.—May 26th, 1915: Second Lieut. H. L. Cooper, Special Reserve. Temporary Second Lieut. D. D. Drury. Temporary Second Lieut. A. V. Hobbs, 10th (Service) Batt. Royal Sussex Regt., and to be transferred to the General List. Temporary Lieut. W. Joyce, 8th (Service) Batt. Bedfordshire Regt., and to be transferred to the General List. Temporary Second Lieut. I. W. Aitken, 13th Reserve Regt. of Cavalry; June 17th, 1915.

Assistant Equipment Officers.—June 1st, 1915: Qmr. and Hon. Lieut. E. J. Parker, R.F.C. Qmr. and Hon. Lieut. S. J. Payne, R.F.C.

Supplementary to Regular Corps.—Arthur P. Thurston to be Second Lieutenant; June 24th, 1915. Lewis E. Brown-Greaves to be Second Lieutenant (on probation); June 14th, 1915.

Special Reserve of Officers.—*Reserve Units.*—*Royal Engineers.*—*Royal Anglesey.*—Capt. Hon. Montague H. E. C. Towneley-Bertie is seconded for service with the Royal Naval Air Service. June 4th, 1915.

The following appeared in the LONDON GAZETTE of the 9th inst.:—

Supplementary to Regular Corps.—Probationary appointment of Second Lieutenant Reginald M. Murray is cancelled. June 21st, 1915.

The following appeared in a supplement to the LONDON GAZETTE issued on the 10th inst.:—

Supplementary to Regular Corps.—Second Lieut. (on probation) Hubert Le Jeune is confirmed in his rank, and to be Lieutenant. April 15th, 1915.

The following appeared in a supplement to the LONDON GAZETTE issued on the 12th inst.:—

Assistant Equipment Officer.—Lieut. Hubert Le Jeune, Special Reserve. April 15th, 1915.

Supplementary to Regular Corps.—To be Second Lieutenants (on probation): James G. Western; July 8th, 1915. Herbert A. Cooper; July 13th, 1915.

The following appeared in the LONDON GAZETTE of the 13th inst.:—

Flying Officers.—June 10th, 1915: Temporary Lieut. H. M. Sison, A.S.C.; Lieut. J. R. Anthony, 6th (Carnarvonshire and Anglesey) Battalion (Territorial), Royal Welsh Fusiliers; Second Lieut. G. L. P. Henderson, Special Reserve; Second Lieut. A. M. Morison, Special Reserve.

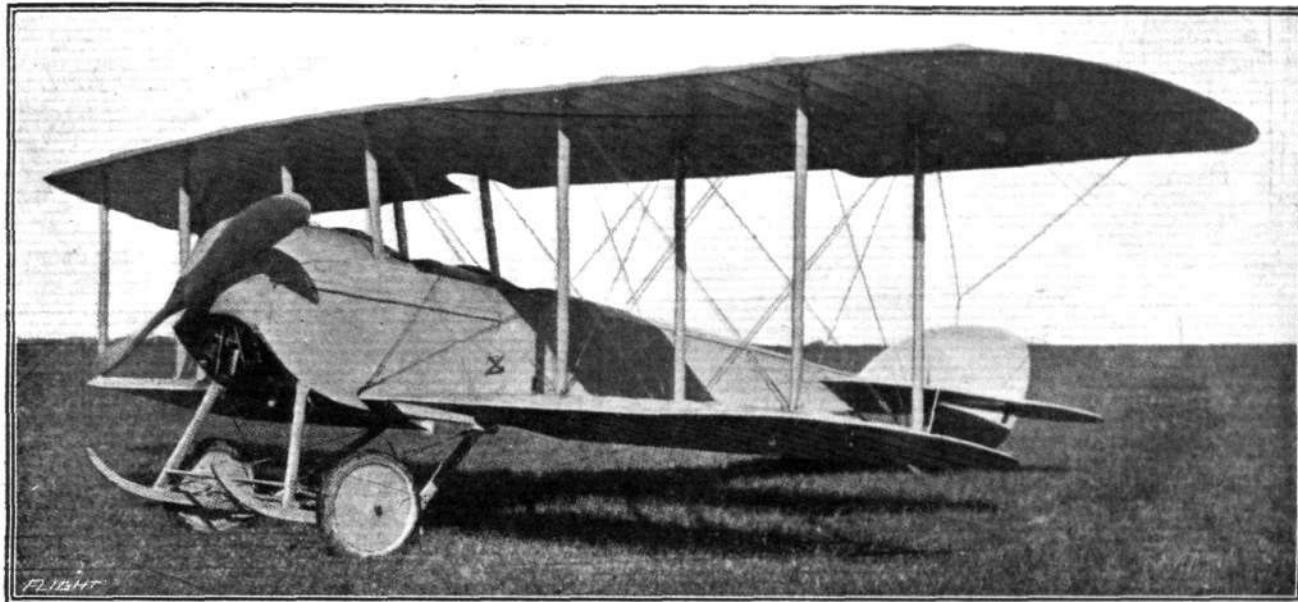
Assistant Equipment Officer (without pay or allowances).—Temporary Second Lieut. Gordon M. B. Dobson. July 1st, 1915.

THE HEINRICH MILITARY TRACTOR BIPLANE.

DESIGNED primarily with the intention of meeting the U.S.A. Army's and foreign governments' requirements, prominent amongst which may be mentioned fast climbing, good speed range, and general stability, the Heinrich

purpose of building these machines to the order of one of the European Governments.

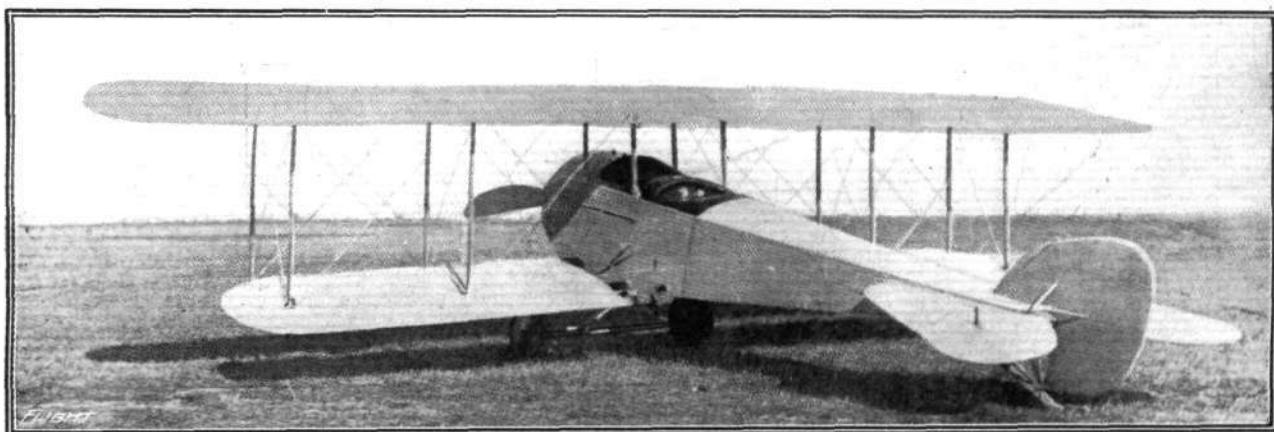
Two of the outstanding features of the Heinrich biplane are the short and very broad body, accommo-



Three-quarter view from the front of the Heinrich military tractor biplane.

tractor biplane is an interesting example of recent American practice. It must be admitted that this machine certainly possesses more originality in design than some of the military machines lately turned out away yonder. Heinrich Brothers, of New York, have been constructing monoplanes for several years now, and this machine, which, by the way, was designed and constructed in record time, is their first biplane. As far as actual performance goes the Heinrich biplane put up a decidedly good show on the first time of asking, when Albert S. Heinrich, accompanied by Mrs. Heinrich, climbed it at the rate of about 1,000 ft. per minute. Subsequent flights brought out further favourable points—a speed range of 45 to 80 miles per hour, climbing speed

dating the pilot and two passengers—side by side—and the swept-back wings. The latter are virtually in four sections, the top plane being in two and attached to a small central panel mounted above the body by four struts, and the bottom plane in two attached direct to the body. Each section is built up on two main spars of I section, the webs being of ash and the flanges of spruce. The front spars are situated 9 ins. from the leading edge, and about 2 ft. 9 ins. from the rear spars. The ribs, which are spaced 9 ins. apart, are built up of ash webs and spruce flanges, reinforced where the interplane struts are attached to the planes. Laminated four-ply ash is employed for the wing tips, which are rounded off Morane fashion. The top plane is staggered forward 9 ins.,

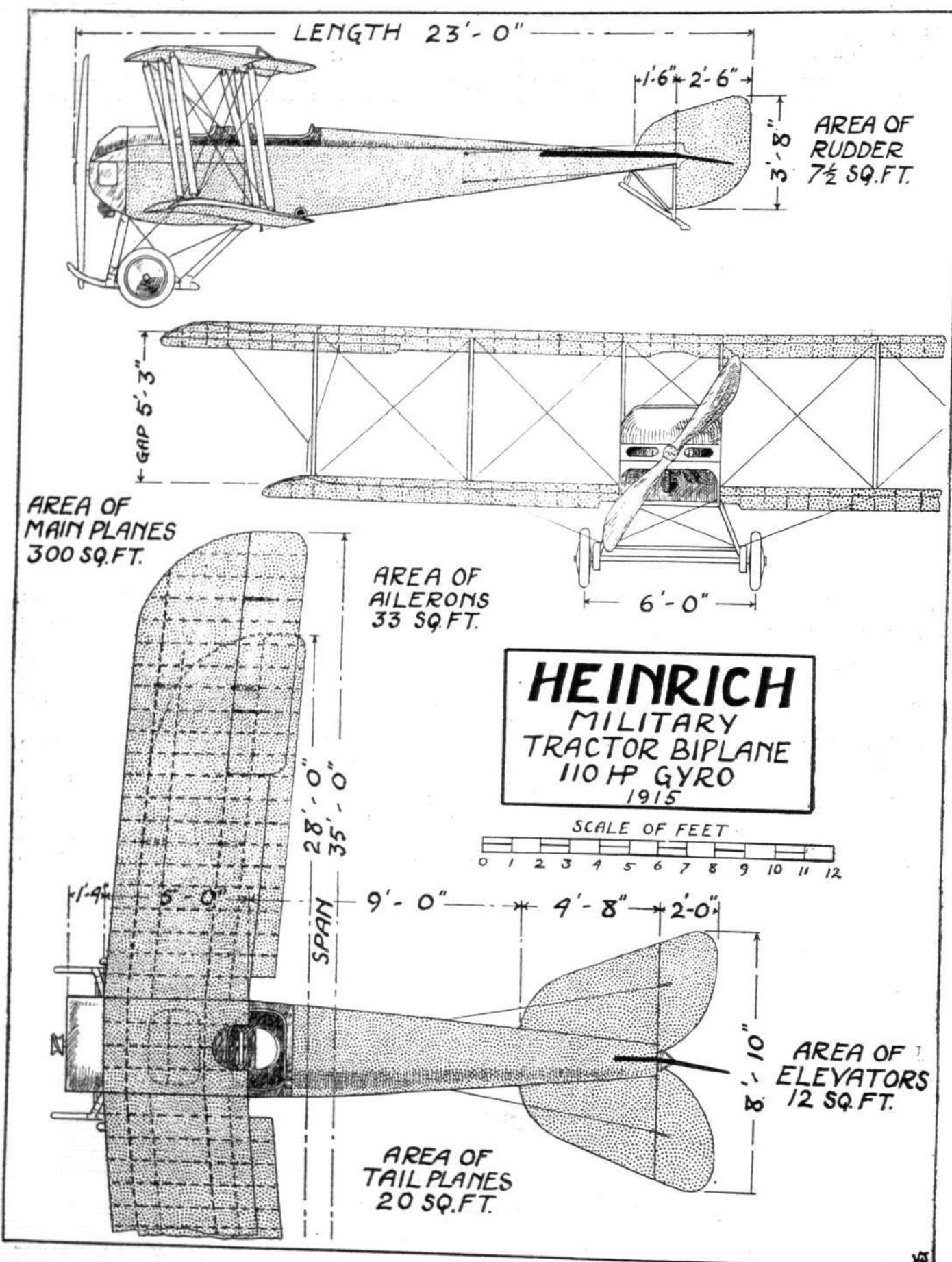


Three-quarter view from the rear of the Heinrich military tractor biplane.

with pilot and passenger and fuel for four hours of 4,000 ft. in 10 minutes. Flying light, a speed of 90 miles per hour has been attained. We believe large works have been taken over by the Heinrich Company for the

and both top and bottom planes are inclined backwards 5°. Each top and bottom section is separated by two pairs of struts, and ailerons measuring 8 ft. 3 ins. by 2 ft. are hinged to the rear spars of the top plane only. The

JULY 16, 1915.



THE HEINRICH MILITARY TRACTOR BIPLANE.—Plan, side and front elevations to scale.

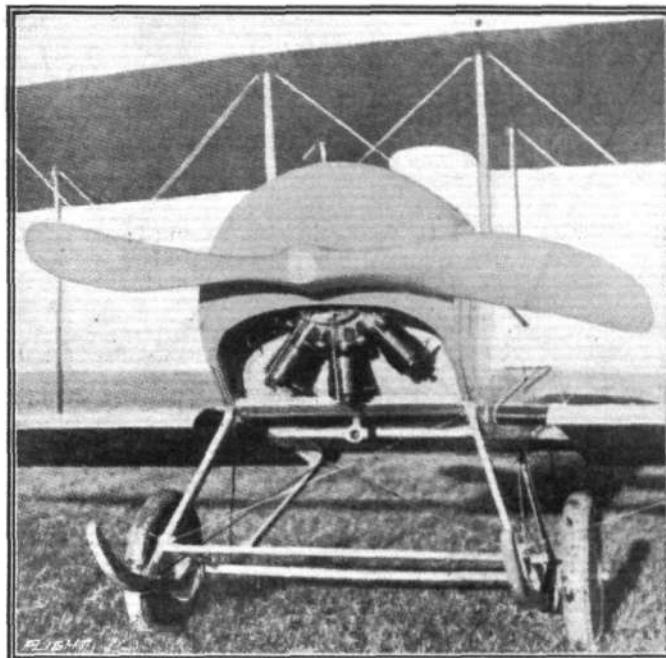
whole of the framework is covered with unbleached Irish linen, doped with a special grey varnish. The tail planes consist of a triangular stabilising surface in two sections, one mounted on either side of the body, two elevator flaps, and a balanced rudder in between the latter. Two types of control can be fitted, either the Deperdussin type, consisting of wheel and rocking column for *ailerons* and elevators respectively, with footbar for the rudder, or else a "three-in-one" control. Dual control is also fitted if required.

The body is of rectangular section, 3 ft. 4 $\frac{1}{2}$ ins. wide by 2 ft. 9 ins. deep in front, tapering at the rear to a horizontal knife edge 13 ins. wide. The longitudinals are of ash tapering from 1 $\frac{1}{2}$ ins. square to 1 in. square. There are seven sets of stout channelled ash struts, which together with wire cross-bracing, make for a strong box-girder of the whole body. The second and third pairs of vertical struts are made extra stout to carry the four struts supporting the top plane, and are slotted at their lower ends to receive the ends of the lower plane spars. On the top of the body is a turtle deck providing a good stream line, which is further preserved by almost totally enclosing the engine by an aluminium cowl. Slots are cut in the front of the latter in order to allow air to enter and circulate round the engine. The aluminium covering is carried back to just forward of the passengers' cockpit, aft of which the body is covered with fabric doped the same as the planes. The engine, a 110 h.p. 8-cylinder Gyro rotary, weighing 270 lbs.—the first of this horse-power to be turned out—is mounted in the nose of the body with



Diagram showing the wing section of the Heinrich military tractor biplane.

both front and rear bearings, the front and rear mountings being of $\frac{3}{2}$ in. reinforced steel, whilst the struts carrying the rear mounting are extra large (2 ins. by 3 ins.) and unchannelled. Coupled direct to the engine is a tractor screw 8 ft. diameter by 6 ft. pitch. Petrol and oil



View showing the 110 h.p. Gyro engine mounted in the Heinrich military tractor biplane.

are fed to the engine by gravity from a service tank holding 15 gallons of petrol and 10 gallons of oil in front of the pilot's seat. The petrol service tank is supplied with petrol from a 25 gallon tank under the pilot's seat by pressure, a hand pump also being fitted for use should the pressure feed fail. The petrol and oil consumption of the 110 h.p. Gyro is said to be 10 gallons and 1 $\frac{1}{4}$ gallons per hour respectively.

A simple but strong under carriage is fitted, consisting of two skids connected to the body by four ash struts measuring 1 $\frac{1}{2}$ ins. by 3 ins., and a pair of 26 ins. by 4 ins. disc wheels. The skids are of 5-ply laminated hickory, 4 ft. 6 ins. long, 2 $\frac{1}{2}$ ins. deep by 2 ins. wide, turned up in front and projecting forward to protect the tractor screw. The axle is attached to the skids by rubber shock absorbers. The whole of the chassis is cross braced by wire, and two steel tubes.



Roll of Honour.

THE Secretary of the Admiralty has announced the following casualty:—

Under date July 12th:

Died of Wounds.

Lieutenant Stanley C. Knight, R.M.A., Anti-Aircraft Brigade.

The following casualties in the Expeditionary Force have been reported from General Headquarters:—

Under date June 21st:

Died of Wounds.

3329 2nd Class Air-Mechanic H. G. Eldridge,
Royal Flying Corps.

Under date July 2nd:

Wounded.

Captain J. N. S. Stott, 5th Dragoon Guards, attached R.F.C.

Under date July 5th:

Missing.

Captain J. C. Leech, 8th (King's Royal Irish) Hussars, attached R.F.C.

Lieutenant E. G. S. Walker, Royal Flying Corps.

Under date July 6th:

Officially reported Missing and Unofficially reported Interned in Holland.

Second Lieutenant F. P. Adams, Royal Flying Corps.

Second Lieutenant G. E. R. Meakin, Royal Flying Corps.

Under date July 7th:

Wounded.

Captain A. B. Burdett, York and Lanc. Regt., attached R.F.C.

Second Lieutenant A. Payze, Royal Flying Corps.

Under date July 8th:

Wounded.

Second Lieutenant W. H. D. Acland, R. 1st Devon Yeomanry,
attached R.F.C.

Second Lieutenant R. V. de Halpert, "Interpreter," attached
R.F.C.

It has been unofficially announced that Lieut. Lister, R.F.C., was killed in a flying test in France, and that Lieut. L. Playfair, 1st Royal Scots, attached R.F.C., was killed on July 6th during an engagement in the air.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Aviators' Certificates.

- THE following Aviators' Certificates have been granted:—
- 1391 Lieut. Geoffrey Brian Hobbs (Northumberland Fusiliers) (Maurice Farman Biplane, Military School, Shoreham). June 26th, 1915.
- 1392 2nd Lieut. Charles Thomas Black (Royal Warwick Regt.) (Maurice Farman Biplane, Military School, Farnborough). June 29th, 1915.
- 1393 Flight Sub-Lieut. Henry Seymour Neville, R.N.A.S. (Caudron Biplane, Royal Naval Air Station, Eastbourne). July 1st, 1915.
- 1394 Flight Sub-Lieut. Maurice Jewison James, R.N.A.S. (Short Biplane, Royal Naval Air Station, Eastchurch). July 2nd, 1915.
- 1395 Vernon Sydney Brown (Maurice Farman Biplane, Military School, Brooklands). July 3rd, 1915.
- 1396 2nd Lieut. Gerald Iredale Newenham Deane, R.E., T.F. (Maurice Farman Biplane, Military School, Shoreham). July 3rd, 1915.
- 1397 Arnold Reed Tillie (Maurice Farman Biplane, Military School, Shoreham). July 3rd, 1915.
- 1398 Lieut. Alan Machin Wilkinson (Hampshire Regt.) (Maurice Farman Biplane, Military School, Farnborough). July 4th, 1915.
- 1399 2nd Lieut. Harold Harrington Balfour (60th Rifles) (Caudron Biplane, Ruffy-Baumann School, Hendon). July 5th, 1915.
- 1400 Eric Leslie Gandar Dower (L. and P. Biplane, London and Provincial School, Hendon). July 6th, 1915.
- 1401 Ernest Herbert Pullinger (L. and P. Biplane, London and Provincial School, Hendon). July 6th, 1915.
- 1402 Flight Sub-Lieut. Eric Lawford Trower, R.N.A.S. (Caudron Biplane, Royal Naval Air Station, Eastbourne). June 18th, 1915.
- 1403 Cedric Waters Hill (Maurice Farman Biplane, Military School, Brooklands). July 3rd, 1915.
- 1404 John Latta (Maurice Farman Biplane, Military School, Brooklands). July 3rd, 1915.
- 1405 Cyril Mountain Leman (Maurice Farman Biplane, Military School, Birmingham). July 3rd, 1915.
- 1406 2nd Lieut. Claude Manley Gibson (10th East Surrey Regt.) (Maurice Farman Biplane, Military School, Birmingham). July 3rd, 1915.
- 1407 Flight Sub-Lieut. Henry Karslake Thorold, R.N.A.S. (Caudron Biplane, Royal Naval Air Station, Eastbourne). July 3rd, 1915.
- 1408 Lieut. Walter Thomas Forrest Holland (21st Lancers) (Beatty-Wright Biplane, Beatty School, Hendon). July 5th, 1915.

- 1409 Laurence Minot (Hall Biplane, Hall School, Hendon) July 8th, 1915.
- 1410 Douglas Arnold Hansard (Maurice Farman Biplane, Military School, Brooklands). July 8th, 1915.
- 1411 James Lander Chalmers (Beatty-Wright Biplane, Beatty School, Hendon). July 8th, 1915.
- 1412 Sergt. Harold Cecil Smith, R.F.C. (Maurice Farman Biplane, Military School, Birmingham). July 8th, 1915.
- 1413 Robert Newman (Maurice Farman Biplane, Military School, Brooklands). July 9th, 1915.
- 1414 Lieut. Richard Craven Grant (Scottish Rifles) (Hall Biplane, Hall School, Hendon). July 9th, 1915.
- 1415 Sergt. James Dennis Payne, R.F.C. (Maurice Farman Biplane, Military School, Birmingham). July 10th, 1915.

American Certificate.

- 331 Frederick Colvin George Eden (Curtiss Biplane, North Island, San Diego, Cal.). June 10th, 1915.

THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.

	£ s. d.		£ s. d.
Total subscriptions received to July 7th,		Flight-Com. H. R.	
1915	9,274 14 11	Busteed, R.N.A.S.	0 10 0
		W. Pryor	5 0 0
		H. E. Yarrow	2 2 0
Miss E. M. Pool	0 10 0	Mrs. Ambler	2 2 0
Lady Llangattock	20 0 0		
C. Venables	0 7 6	Total, July 14th,	
A. G. Leeper	0 5 0	1915	9,305 11 5
166, Piccadilly, W.		B. STEVENSON, Assistant Secretary.	

FROM THE BRITISH FLYING GROUNDS.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Last week, straights with instructor: Probationary Flight Sub-Lieuts. Blake, Clayton, Clifford, Dallas, Douglas, Hodges, James, Minifie, Murray, Perham, and Sievking. Circuits with instructor: Probationary Flight Sub-Lieut. Pearson. Certificates taken during week: Probationary Flight Sub-Lieuts. Hardman and Watkins. Instructors: Messrs. Manton, Russell, and Winter.

Beatty School.—The following pupils were out during last week on Beatty-Wright machines, accompanied by the instructors: Messrs. Boyle (31 mins.), Chalmers (15), Davison (22), Delves (14), Eaton (25), FitzHerbert (18), Holland (15), Jones (23), King (29), Morgan (15), Ross (21), Sampson (15), Tomlinson (60), Vickers (15), Zimmermann (27), Savile-Onley (23), Dickenson (30). The following received instruction on a Caudron machine: Messrs. Alcock (20 mins.), Banks (16), Chalmers (8), Coates (10), Collett (10), Crossman (10), Davison (10), Goodfellow (30), Nicholson (20), Over-

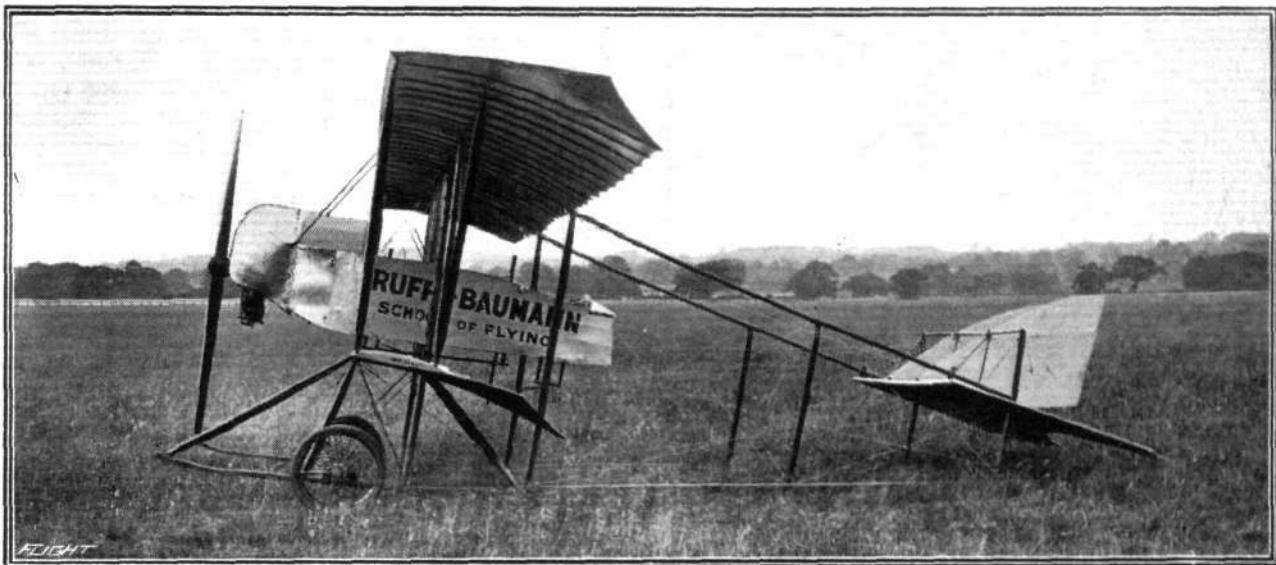
ton (20), Rutherford (13), Spicer (10), Thompson (20), Tolhurst (20), Dickenson (20), Bell (20), Stagg (10).

Two very excellent tickets were taken, one on Monday by Lieut. W. T. Holland, and the other on Thursday by Mr. Chalmers. Extra practice was taken by Messrs. Chave and Turner.

Exhibition flights were given on Thursday, Saturday and Sunday.

Hall School.—Last week showed record work at the Hall School, two splendid certificates being taken, one by Laurence Minot and the other by Lieut. Grant, Mr. Minot making a splendid *vol plané* during the test from 2,300 ft. with propeller stopped. Lieut. Grant, who has been fighting in the trenches during the greater part of the war, obtained special leave so as to join the School and qualify for the Royal Flying Corps.

The following pupils are practically ready to qualify for their Royal Aero Club Pilot's Certificate: Messrs. Furlong, Lieut. Raymond-Barker, Lieut. Blythe, Mason and Gay. Receiving instruction with Mr. Stevens:



The new 50 h.p. Gnome-Caudron type biplane, built by the Ruffy-Baumann School of Flying, Hendon, and used for tuition and brevet purposes. The same firm are now constructing other machines of similar type of 50 and 60 h.p.

Lieut. Phillpotts (38 mins.), Messrs. Booker (53), Furlong (25), Gay (64), Minot (20), Lieut. Grant (40), Mr. Mason (16), Lieut. Raymond-Barker all doing circuits or figures of eights. With Instructors Cecil M. Hills, Herbert James and C. W. Snook, the following pupils received practice: Messrs. Russell (64 mins.), Bell (36), Millbourn (22), Hammer (28), Wilkins (16), Hatchman (30), Lieut. Jowett (48), Yonge (38), Gordon (54), Bayley (14), Snowdon (28), Bangs (12), Huggan (14), Watson (14), Punnett (10).

Mr. Snook, who it will be remembered took his certificate at the Hall School last week, has been kindly helping with the school practice during the week, and is now taking up his new duties with the R.F.C. Messrs. Minot and Lieut. Grant have also been appointed to the R.F.C.

Machines in use: Hall tractor biplanes.

London and Provincial Aviation Co.—Pupils at work last week: Messrs. Sykes, Sargood, and McOnie, rolling: Messrs. Everidge, Gunner, Jacques, Scott, and

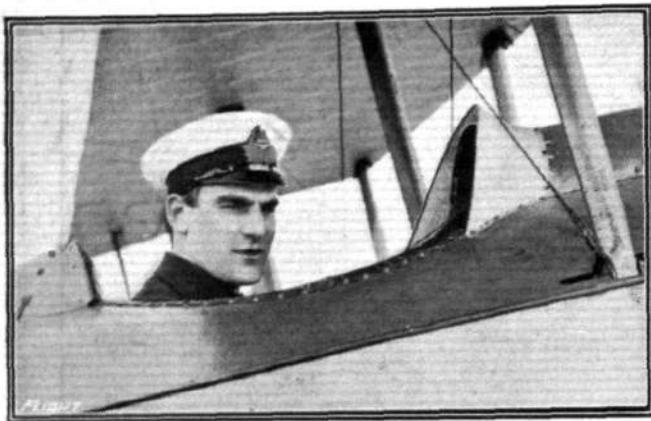


Flight Sub-Lieut. A. R. Cox, R.N.A.S., who has qualified at the Chingford Aerodrome.



Copyright, F. N. Birkett, from the F.N.B. Series of Aviators.
Flight Sub-Lieut. W. D. Wain, R.N.A.S., who has recently qualified at the G.-W. School.

Above we reproduce two portraits of pilots who have recently taken their tickets. By an unfortunate confusion by the photographer these have appeared in *Flight* with the names reversed—the one on June 11th and the other on July 2nd. They should have had the names under them respectively as they now are given, and this repetition of the photos will no doubt prevent any future misconception.



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Flight Sub-Lieut. Norman W. G. Blackburn, who has recently taken his ticket at the Grahame-White School, Hendon. Mr. Blackburn is the brother of Mr. Robert Blackburn, the builder of the Blackburn aeroplanes and propellers.

Moynihan, straights; Messrs. Dower, Pullinger, Wood, and Adams, circuits and eights.

Certificates taken during the week: Mr. E. L. G. Dower took his *brevet* on Tuesday morning in good style, making both landings on the mark and a perfect *vol plané*. On Tuesday evening Mr. E. L. Pullinger passed for his certificate, flying steadily with good landings and *vol plané*.

Instructors: Messrs. W. D. Smiles, W. T. Warren, and J. H. James.



FLYING AT

A STRONG wind last Saturday afternoon cut down the flying at Hendon to some half-a-dozen flights or so, but these were not lacking in interest on this account. In fact, quite the reverse, for the spectators were given the opportunity of observing the behaviour of aeroplanes under adverse conditions. The demonstrators on this occasion were M. Osipenko and Marcus D. Manton, who took it in turns to hold on tight to the joy-stick of the 50 h.p. G.-W. school 'bus. Incidentally, other unofficial demonstrations of airmanship were given by an old Hendon favourite, Flight Lieut. Sydney Pickles, on a new-type Curtiss tractor biplane, two unknown pilots who



German Aviation "as She is Progressed."

THE following *résumé* of the latest developments of German war aeroplanes as given in the DAILY MAIL of the 13th inst. will, we feel sure, be perused by our readers with considerable interest:—

"GERMAN FLYING FORT.

"BATTLE TRIPLANE OF GREAT SPEED.

"FROM A CORRESPONDENT.

"Bale, Wednesday, July 7th.

"I have received details of a very large new German aeroplane. It is a triplane (*i.e.*, three tiers of planes) with eight Maybach motors such as are used in Zeppelins.

"The engines are coupled in pairs, and each couple drives one set of propellers, of which there are four. The machine will fly with only two propellers, but runs at a high speed when all four are used.

"It is said that the aeroplane can carry twenty men. There are four machine guns on board, and at a slight elevation a revolver gun is mounted on an armoured tower. All steering, with the exception of changes of altitude, is executed with the aid of the motors; turning is effected by inclining the propellers.

Ruffy-Baumann School.—The following pupils have been out last week on the 50 h.p. Ruffy-Baumann biplane, the 50 h.p. Caudron-type biplane, and the 60 h.p. Ruffy-Baumann biplane: Fenning (10 mins.), Boisson (6), Hudson (8), Liddell (10), Mathewson (42), Gardner (30), Brand (18), Sykes (16), Derwin (16), and Wilson (18).

Monsieur Baumann made many flights with and without passengers on exhibition days in high winds. The new 50 h.p. R.-B. machine has now been tuned up and is flying admirably, showing fine climbing capabilities.

Instructors: Edouard Baumann, Felix Ruffy, Gino Virgilio, and Clarence Winchester.

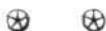
Northern Aircraft Co., Ltd.

The Seaplane School, Windermere.—Work done last week by pupils with instructor: S. S. Benson (35 mins.) W. Laidler (15), N. K. Lawton (32), D. S. C. Macaskie (32), G. M. Part (33), H. Robinson (24), D. N. Robertson (28), J. F. Ridgeway (30), H. Slingsby (25), E. R. Yates (14), A. J. Inglis (38). Figures of eight and circuits: S. J. Sibley.

Instructors: Messrs. W. Rowland Ding and J. Lankester Parker.

Messrs. W. Rowland Ding and J. Lankester Parker were out several times giving exhibition or test flights, and a number of passengers were carried during the week-end.

Machines in use: N.A.C. pusher biplane, which has been entirely rebuilt, altered and fitted with twin floats. The Perry-Beadle flying boat has been out, and her behaviour on the water was highly satisfactory.



HENDON.

left for somewhere on Government machines, and a flock of rooks. The latter made some marvellous landings in close formation—a veritable object-lesson for pupils who have to do their bit when things are extra busy with the schools. The flying of the Curtiss struck one as being very much an improvement on that of previous models.

On Sunday the wind was much stronger, but Osipenko and Manton took up the old 'bus in spite of all, so the spectators were not disappointed. W. Roche-Kelly also made several flights on the 50 h.p. Beatty-Wright biplane.



"The whole machine is armour plated, and the under-part is shaped like an inverted roof.

"No other particulars are obtainable yet, but certainly all the results of the experiments made during the war have been carefully noted, and all possible improvements have been made.

"The aeroplane is three times as big and strong as the usual flying machines. Six of these giants are finished. The intention is said to be to use them for attacks on trenches, while the smaller machines will continue to be used for patrolling and for surveying artillery fire."

An "Ideas Board" in the U.S.

THE formation in Britain of a board for the consideration of inventions for the national benefit has quickly had its duplication in the United States, where it is being organised by the Navy Secretary. Mr. Edison was early announced as one of its members, and now Mr. Orville Wright has been added, by his consent; whilst, amongst others, it is hoped that Mr. Henry Ford, of Ford car fame, will join up with it for the good of his country.

AIRCRAFT AND BOMBARDMENT INSURANCE.

In the House of Commons on Tuesday, the general lines of the promised Government Insurance Scheme against aircraft were at last given by Mr. Runciman, the President of the Board of Trade. His statement and the subsequent queries were as follows:—

On June 21st I appointed a Committee consisting of the following gentlemen: Mr. Frederick Huth Jackson, Sir Raymond Beck, Mr. Cuthbert Heath, Mr. Roger Owen, and Sir Gerald Ryan,

to consider, without prejudice to the question of policy, whether a scheme can be devised to cover loss and damage by bombardment and aircraft in so far as such loss and damage are not covered by the terms of the ordinary fire insurance policy. Any scheme prepared must be on the basis of reasonable contribution being paid by the owners of property insured towards the cost of insurance.

The Committee have now formulated a scheme which the Government are prepared to adopt. The Committee found that the best practicable method of dealing with the problem would be to invoke the assistance of the fire insurance companies. They accordingly approached a number of the large fire insurance companies, and as the result of their inquiries they based their report on the assumption that a sufficient number of fire insurance companies would be prepared to act as agents for the Government in the issuing of policies and the collection of premiums, and in the initial proceedings in connection with loss assessments.

They reported that it would also be necessary to establish a special State Insurance Office to supplement the work of the fire offices which act as agents for the Government.

Nature of Risks Covered.

The scheme would cover loss and damage to the property insured (with the exception of deterioration, loss of market, or loss of profit) caused directly or indirectly by aircraft or bombardment in so far as the loss or damage would not be covered by an ordinary fire policy containing a clause in the following words:

This policy does not cover loss or damage occasioned by or happening through invasion, foreign enemy, riot, civil commotion, or military or usurped power.

Rent may be insured as well as specific loss or damage to property.

Insurance against bombardment is optional. Two policies have been drawn up, one against aircraft risks only; the other against aircraft and bombardment risks. The terms of these policies are shown in Schedules 1 and 2 of the report which will shortly be circulated.

The insurance of goods on board ship would not be covered under the scheme, nor would ships on the slips.

In the case of bombardment, the cover is limited to bombardment by hostile guns not landed on British territory.

Co-operation of Insurance Companies.

It is proposed that the State should enter into an agreement with any approved fire insurance company, authorising the company to issue policies on behalf of the State, and to collect the premium thereon.

The principle of the arrangement is that persons insured against fire in an approved company can take out through the same company a policy against aircraft and bombardment.

A remuneration of 10 per cent. on the gross premiums would be paid to the companies to cover all expenses connected with the issue of the policies, the collection of premiums, and the expenses of the initial proceedings in connection with the adjustment of claims, with the exception of the assessors' fees, which would be paid by the Government.

All claims to be finally settled and paid in cash by the State Insurance Office within thirty days of the adjustment of the claim.

The accounts between the Government and the companies to be settled monthly.

Any company which elects to act as agent for the Government may not accept risks on its own account.

The State office will insure property which is insured against fire, elsewhere than with the approved companies acting as agents for the Government, and it will also insure property which is not insured against fire at all, and also the property of the persons who elect to deal direct with the State Insurance Office.

The office will be under the administration of a Committee of

Experts, including representatives of Lloyd's, fire insurance offices, and the Government.

In addition to issuing policies of insurance, the State office will receive the monthly accounts from the approved insurance companies, and will finally settle and pay all claims.

The State office will not accept reinsurance.

Premium Rates.

The rates to be charged will be the same for all districts, and are as follows:—

	Against Aircraft only.	Against Aircraft and Bombardment.
1. Building, rent, and contents of private dwelling houses and buildings in which no trade or manufacture is carried on	... 2 0	3 0
2. All other buildings and their rents ...	... 3 0	4 6
3. Farming stocks (live and dead) ...	... 3 0	4 6
4. Contents of all buildings other than those specified in 1 and 5 ...	... 5 0	7 0
5. (A) Merchandise at docks and public wharves in carriers' and canal warehouses and yards, in public mercantile storage warehouses and in transit by rail ...	7 6	10 0
(B) Timber in the open ...	...	...
(C) Mineral oil tanks and stores wholesale	...	...

N.B.—(1) Insurance under Class 5 may be accepted for short periods at the following rates:

Six months—Three-fourths of the annual premium.

Three months—One half of the annual premium.

One month—One-quarter of the annual premium.

All the other rates are for twelve calendar months or any shorter period.

N.B.—(2) Buildings, rent, and contents must be specified separately.

I am inviting some fifty of the larger fire insurance companies to co-operate with us in working this scheme by acting as agents for the Government, and if as I hope and expect this invitation is accepted, it should be possible to commence the scheme at the beginning of next week.

It is not proposed to limit the scheme necessarily to these fifty companies. If any other fire insurance companies would be willing to act as agents for the Government in working this scheme, and will be good enough to send me their names, their application to be placed on the list of approved companies for this purpose would be welcomed and carefully considered.

Existing Policies Unaffected.

Mr. Fell (U., Yarmouth): Will Lloyd's continue to issue insurances?

Mr. Lough (R., Islington, W.): Has the right hon. gentleman made any arrangement with regard to insurances already made?

Mr. Runciman: The Government do not propose to take over any insurances already made. Lloyd's will be able to conduct their business if they can attract custom at cheaper rates than those provided by the Government.

An Hon. Member: Have any arrangements been made with regard to personal injuries?

Mr. Runciman: No, sir. We have not provided for personal injury.

Mr. Price (R., Edinburgh, C.): Will the right hon. gentleman give the House an opportunity of considering these terms? Those connected with insurance see that many of them are very absurd.

Mr. Asquith: I will consider that.

Sir W. Pearce (R., Limehouse): Is the right hon. gentleman including risks of incendiary fires by enemy agents?

Mr. Peto (U., Devizes): How does this affect compensation already granted from insurance premiums in previous air raids or bombardments?

Mr. Runciman: In so far as compensation has already been granted, it obviously will not be interfered with. We do not provide against incendiary fires. We are only asked to provide a scheme against damage done by aircraft or bombardment.



Fatal Accident to Capt. A. H. L. Soames.

It is with great regret that we have to record the fatal accident on the 7th inst. to Capt. A. H. L. Soames, the officer in charge of the experimental section at the Central Flying School. At the inquest the evidence showed that experiments were being conducted with a new type of bomb in a wood near Netheravon hospital. The bomb was fired with an electric wire 100 yards long, and after

the explosion Capt. Soames was found on the ground severely injured. He died in Netheravon Hospital the same night. Major Boase was also injured. A verdict of accidental death was returned. It may be recalled that Capt. Soames was at the front for some time in the early days of the war, and was mentioned in despatches and awarded the Military Cross and the French Legion of Honour.

EDDIES.

BEING by nature of a quiet and unassuming disposition and lacking the gift of advertising himself, the excellent flying done by René Desoutter during the last few months has hardly met with the public appreciation that it deserves. On the other hand, those who know him best have long realised that, in him, the British Caudron Co. have been fortunate, or far-seeing, enough to secure a pilot of no mean ability for testing their machines. Having known René Desoutter ever since he and his brother Marcel were associated with the Blériot firm at the old headquarters at Hendon, and having followed his progress since, it did not come as a very great surprise to be told by a wholly disinterested person up at Hendon the other day that "Des" made a magnificent flight on a 100 h.p. Caudron in a wind blowing somewhere in the

neighbourhood of 50 m.p.h. After reaching a height of about 3,000 ft. the wind seemed to grow a bit steadier, but up till then the machine was tossed about considerably and the advantage of the flexible trailing edge, that has always formed such an important feature of the Caudron biplanes, was clearly demonstrated by the way in which the trailing edge of the planes could be seen repeatedly to flap up suddenly, "letting out" the gusts as it were, without greatly affecting the attitude of the machine. The strength of the wind can be realised when one hears that it was all "Des" could do to fight his way back to the aerodrome against it. What it was like may also be gauged by the fact that on the same day a military machine made the trip from Farnborough to Hendon in 21 mins., or at a speed working out at something like 120 m.p.h.

x x x

If there be anything in the report which is reproduced in this issue, sent home the other day by a DAILY MAIL correspondent from Basle, Germany is getting up quite a fine little fleet of scouts fitted with 8 Maybach engines driving four propellers. The statement is made by the correspondent that these machines are three times as big as the ordinary aeroplane, and are of the triplane type. Taking as an ordinary machine one having a span of 50 ft. and a chord of 6 ft., the new instrument of frightfulness should have a span of 150 ft. and a chord of 18 ft., which for the three planes would give an area of 8,100 sq. ft. Taking the weight of the machine empty as increasing as the cube the triplane should weigh something like 22,000 lbs. Each of the Maybach engines would weigh about 1,000 lbs. (I am taking for granted that they are of the 180 h.p. type), and would consume a trifle of 90 lbs. of petrol per hour, or 720 lbs. for the eight of them. The 20 men which the machines are said to be able to carry would add another 3,000 lbs. or so to the weight, although why it should be desired to carry such a number is not quite clear. From an admittedly very "rough" estimate it would, therefore, seem that the total weight of machine with 20 men up and petrol for 4 hours, would be close on 36,000 lbs., and this without taking into account the weight of the armour and armament, which latter is said to consist, in addition to their ammunition, of four machine guns and one "revolver" gun placed in a sort of turret. Although the loading might possibly be kept as low as some 5 lbs. per sq. ft. I plead guilty to a most ardent desire for seeing the stress diagrams of the new triplane.

x x x

Evidently some of the French aviators are doing good work out in Serbia, for according to our esteemed contemporary L'AEROPHILE escadrille M.F.S. (Maurice Farman Serbe), under the command of Capitaine J. de Lareinty-Tholozan, left France on March 6th, and arrived at Palanka, 70 kilometres south-east of Belgrade, on March 20th. On April 18th six machines piloted by Captains Martinet, Paulhan, Chief Adjudants Séré, Thirouen, and Adjudants Sélaquet and Pété, took the air and arrived later on the Banitza Plain near Belgrade. In two hours Capitaine Lareinty-Tholozan had the lorries, spares, petrol, &c., loaded on board a train, and at three o'clock in the afternoon he arrived with the whole outfit at Topschider, the terminus of the railway. By nine in the evening all was safely deposited on the ground at Banitza, the last part of the journey being covered by road.



The Curtiss Marine Flying Trophy, presented by Mr. Glenn H. Curtiss to the Aero Club of America. This silver trophy, which stands 3 feet 9 $\frac{1}{2}$ inches high, is emblematic of the triumph of wings over the dominating elements, the sea and the air. Neptune, the ruler of the waves, who has controlled all marine craft throughout the ages (the Viking boats of thousands of years ago, Columbus's caravel, the Santa Maria, are shown in the distance), and who still has control over the latest marine craft (some of the representative craft—the Yacht Cup winner, a liner, a dreadnought, and a submarine—are shown in the net which he holds in his left hand), rises from the sea and reaches out for the flying boat which is flying over the globe. But this craft rises beyond his reach, and he stands amazed, his hand uplifted in an attempt to grasp the fleeting aircraft. Boreas, the ruler of the winds, blows draughts of air, and also reaches up for the flying boat, but his efforts are ineffective, the aircraft is undisturbed by them. The trophy was conceived by Mr. Henry Woodhouse.

On April 28th the French aviators had an engagement with some hostile pilots, one machine coming from the direction of Bejana being forced to retire towards Palanka pursued by a French machine, which overtook it near Semendria and opened fire on it at a distance of about a hundred yards. The hostile aviators, however, refused to fight, and retired across the Danube after firing two unsuccessful shots. Later another Austrian aeroplane hove into sight, but as soon as it discovered that it was being pursued it hurriedly turned tail and made for the safe side of the border.

x x x

During the night between April 29th and 30th two French aviators had one of the most exciting experiences of their eventful life. Starting from Banitza at 11 o'clock at night Capitaine de Lareinty-Tholozan, accompanied by Observateur Mortureux, left for Semlin with 80 litres of petrol and four bombs. After passing over Belgrade at a height of 600 metres they arrived over Semlin, having in the meantime climbed to 2,000 metres. Immediately two strong Austrian searchlights swept the skies but to no avail. Having arrived over the aviation park and some large barracks just outside Semlin the French officer released two bombs which could be heard to explode as they struck the ground. A third bomb was dropped, but caught with its "feathers" in one of the stay wires of the chassis near the wheels. The position of the bomb was such that it could hardly fail to explode the moment the machine landed, and the French officers realising this decided before attempting to disentangle it to fulfil their mission and dropped their fourth and last bomb on the most powerful searchlight, which immediately went out of business.

x x x

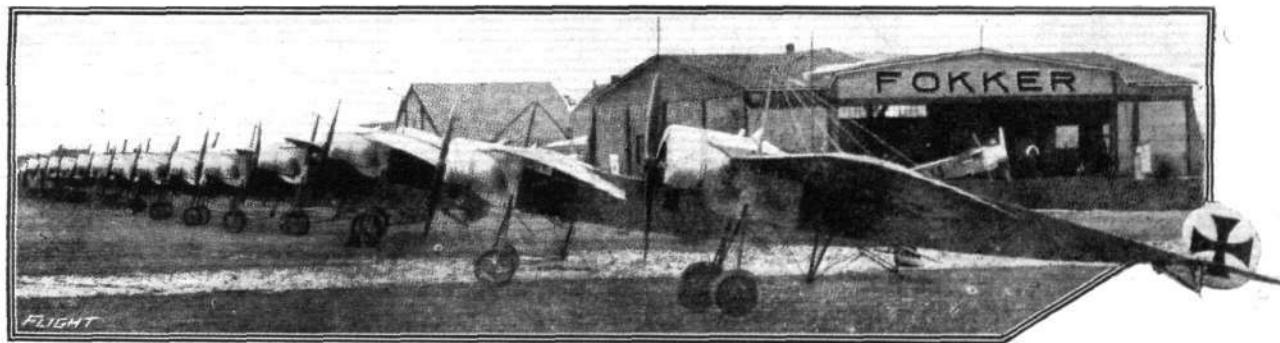
Pointing out to the pilot that it was through his fault (the observer's) that the bomb had caught in the chassis, the observer asked the pilot to turn about and make a glide for the aerodrome at Banitza, and to let him know when they had descended to 800 metres. By the light of his electric torch the pilot examined his altimeter, and when it showed 800 metres gave the word to the observer, who, climbing up on the petrol tank behind him, wriggled



Copyright, F. N. Birkett, from the F. N. B. Series of Aviators.

Mr. C. W. Snook, the motor engineer mentioned in last week's "Eddies," who came over from Australia in May last for the purpose of joining up with the R.F.C. He obtained his Royal Aero Club certificate on the last day of June at the Hall Flying School, Hendon, and we understand he has been appointed to Brooklands on probation.

his way out among the bracing wires, and holding on to one of the struts, and kneeling down on the lower plane, succeeded by leaning out over the leading edge in freeing the bomb, which exploded in a deserted field. Somewhat chilled by the cold wind whizzing by at the rate of some 70 m.p.h., the observer then reached the comparative comfort of his cockpit again, and a landing was made in safety at Banitza. Needless to say Mortureux was mentioned in the *Ordre du jour*. "ÆOLUS."



A BATCH OF HOSTILE FLYERS.—Although the German Army is chiefly using machines of the biplane type, the monoplane has not been altogether banned, as will be seen from the accompanying photograph showing a batch of 15 Fokker monoplanes ready for their acceptance tests. That they are intended for military purposes is evident from the fact that they are all marked with the black cross on wings and rudder.



A Fatality at Shoreham.

ON Monday last an accident occurred at Shoreham, by which Mr. Henry D. Liley, a civilian tester attached to the Royal Aircraft Factory, lost his life. He was a passenger on a machine piloted by Second Lieut. Goolden, R.F.C. According to a written statement by the pilot, who was too unwell to attend the inquest, after climbing to a height of about 150 ft. the engine stopped and a gust of wind lifted his right plane. Finding it impossible to right

this tendency, he decided on a left turn, which entailed flying down into the wind. For a few moments the machine felt normal, but another gust of wind struck it, rendering it uncontrollable and causing it to dive nose foremost to the earth.

The machine subsequently caught fire. When extricated from the wreckage, Liley was extensively burnt about the arms and legs, but medical evidence showed that death was due to a fractured skull, and must have been instantaneous. The jury returned a verdict of accidental death in accordance with the evidence.

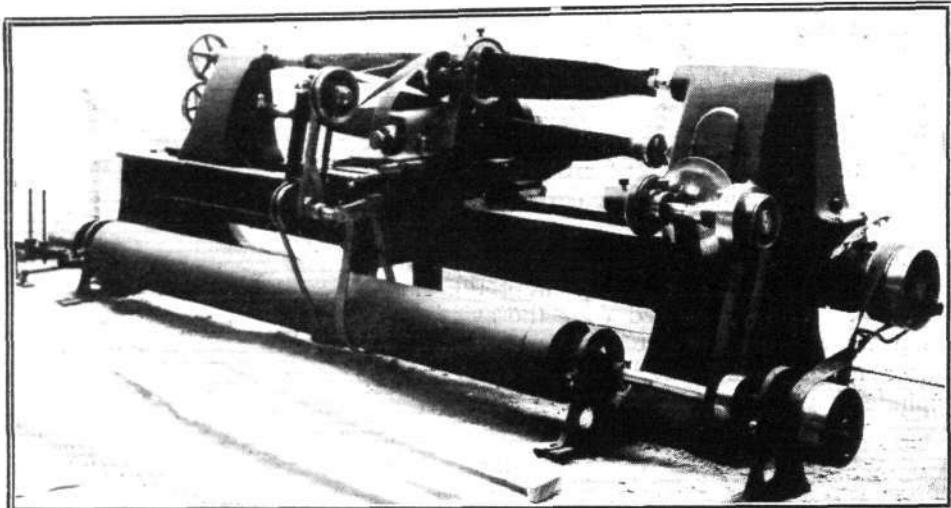
THE WADKIN STRUT-COPYING LATHE.

IN times like the present, when the demand heard everywhere is for "speeding up" the production of war munitions in all their various forms, and when, moreover, the demand for skilled labour far exceeds the supply available, any new invention of labour-saving devices or machines helping towards an increase in production is entitled to most careful consideration by manufacturers. That this applies to aeroplane construction quite as much as, if not more than, to any other branch of munition manufacture, is beyond doubt. The percentage of component parts of an aeroplane that require skilled labour in their manufacture is very high indeed, in view of the great accuracy demanded. Although in the past orders were not always forthcoming in sufficient numbers to justify aircraft

time. One quite new and highly important feature is that an abrasive belt of high lineal speed follows immediately after the cutter and provides a very high finish, thus ensuring that the work is dead accurate at all points as it leaves the machine.

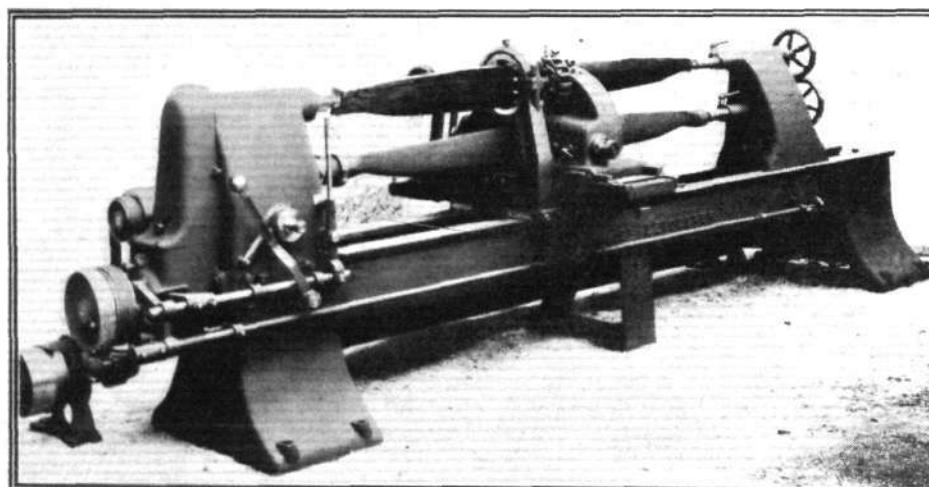
The cutter head is fitted with eight cutters, and will turn with equal success either hard or soft wood. The spindle is mounted on ball bearings running in dust-proof housings, and the thrust is taken by a special double ball thrust washer. It is mounted upon a sliding frame, which reciprocates on ball bearings in a path to correspond with the shape of the original piece to be copied. The grinding headstock also reciprocates on ball bearings on the opposite side of the work, and each headstock is provided with a guide roller having

View of the Wadkin strut-copying lathe.



manufacturers in laying down expensive plants for the production of aircraft on a commercial scale, the number of orders now on hand at any rate is such that an initial outlay of a few hundred pounds for the purpose of machinery that will save its cost in probably a few months' time should be considered an excellent investment. As an example of this class of machinery, and one which should be of the greatest interest to aircraft constructors, may be mentioned the combined copying and finishing lathe recently produced and patented by Messrs. Wadkin and Co., of North Evington, Leicester, the well-known specialists in wood-working machine tools. While having been specially designed for the exact copying and finishing

a fine thread screw adjustment to allow the depth of cut to be varied. The headstock rollers are kept in contact with the original by means of springs, and provision has been made for adjusting and equalising the pressure. The feeding mechanism which controls the cutter and grinding headstock carriage, is arranged to feed from right to left. It has two changes of feed, $\frac{1}{4}$ inch and $\frac{1}{8}$ inch, to each revolution of the work being turned, and the change from one to the other can, if desired, be made whilst the machine is running. The driving mandrels are mounted on ball-bearings running in dust-proof housings, and are driven by steel spur gearing entirely cased in and with special provision for taking up any slack-



Another view of the Wadkin strut-copying lathe.

of aeroplane struts and fairings, this lathe is equally successful on other classes of work. It will deal accurately with the most delicate sizes up to 8 ins. in diameter and 8 ft. in length, and will produce an exact facsimile of any model. One of the difficulties in manufacturing long aeroplane struts is that springing and vibration of the timber must be entirely eliminated. This has been overcome after a considerable amount of experimental work by adopting a specially designed "steady" which supports the timber quite close to the cutter. A further advantage of this "steady" is that it enables delicate work of short length to be operated in long lengths and cut off afterwards, instead of placing them into the machine one at a

ness of the teeth. The speed of the mandrels may be varied by means of a lever operated from the front of the machine, to suit the diameter of the work, and this is so arranged that a constant rate of movement of the timber past the cutters is obtained, irrespective of the perimeter of the section at any point.

The reputation of the makers of this lathe is sufficient guarantee that it combines the best materials and workmanship throughout. It is built for hard continuous wear, and is provided with ample means for lubricating the various parts.

We heartily welcome this fresh indication of the influence which the aviation industry is exercising in various other industrial directions.

AIRCRAFT AND THE WAR.

IN the "wireless" news sent out from Berlin on the 6th inst. there was the following :—

"Our aviators attacked the aviation ground at Corieux, east of Epinal, and a French camp on the Breitfirst, East of Kruct, in the Vosges."

Writing from the Eastern Mediterranean Base, under date of the 6th inst., the DAILY TELEGRAPH correspondent in the Dardanelles said :—

"An intense bombardment was in progress from midnight on Sunday to seven in the morning of yesterday. The sound was distinctly audible, even at this distance, fifty odd miles away, thus giving the lie to the statement printed in pamphlets, and thrown broadcast over the Australian lines by a German aviator, that the British Fleet had abandoned them."

In the German "wireless" news of the 7th inst., it was stated :—

"In Champagne, south-west of Suippes, our airmen successfully bombarded an enemy military camp."

The DAILY MAIL correspondent at Porrentruy (Switzerland), writing on the 7th inst., said :—

"In Alsace German aeroplanes have been flying over the whole front day and night, and a fresh attempt was made to bombard the station of Delle."

In the Austrian *communiqué* of the 7th there was the following :—

"The Italian airmen threw three bombs on Trieste without doing much damage."

"Several of our airmen successfully intervened in the battle [east of Trebinje, Montenegro] with bombs and machine-gun fire."

According to information received from Ghent by the ECHO BELGE on the 7th inst., a Zeppelin developed a defect in its motors a day or two previously and fell upon a farmhouse at Assenede.

A Central News message from Amsterdam on the 7th inst., stated :—

"Some of the aeroplanes which made a raid on the Zeppelin shed at Brussels afterwards flew over Malines and attacked the Arsenal there. Although a number of bombs were dropped it is reported that not much damage was done."

In a despatch from Otavifontein (S.W. Africa), *via* Cape Town, July 7th, dealing with the operations in German S.W. Africa, Reuter's correspondent said :—

"Fighting occurred along the whole front, often at a few yards distance. Aeroplanes of the Union force were hovering over the scene of action."

In the Turkish *communiqué* of the 7th inst. there was the following :—

"Our airmen have twice dropped bombs successfully on the enemy troops."

The DAILY TELEGRAPH correspondent at Athens, writing on the 7th inst., said :—

"It is reported from Mitylene that a British hydroplane, setting out from Mudros, threw bombs on Smyrna. The Turks fired upon the airman, but without success. The hydroplane afterwards dropped bombs on the Turkish batteries at Aivali, returning thereafter to Mitylene because of slight motor trouble."

The DAILY MAIL correspondent at Rotterdam on the 8th, reported the following :—

"I learn from Bruges that on Tuesday 20 Allied aeroplanes made a raid on the city and caused much destruction at the docks."

The Central News correspondent in Northern France on the 8th inst. said :—

"Prisoners admit that the systematic raids by British airmen into enemy territory have inflicted considerable damage, and excited much alarm in the attacked areas."

In a message from Milan to the DAILY TELEGRAPH on the 8th inst., dealing with the fighting between Castello Nuovo and Monfalcone, Mr. A. Beaumont said :—

"The land forces were very materially assisted by dirigibles and flight squadrons, which joined the general action on July 5th and 6th, not only exploring the enemy's positions, but seriously interfering with his manoeuvres and defences by dropping bombs on

railways, damaging another junction at Opicina, not many kilometres from Trieste, bombarding the aviation station at Aisovizza, on the right of Gorizia, near the road leading to Aidussina, and dropping bombs likewise on the railway station of Nabresina, on the strategic coast line, halfway between Monfalcone and Trieste."

The following information was received from Rome by the PETIT JOURNAL on the 8th inst.:—

"In consequence of the damage caused by the bombardment of the technical works at Trieste by an Italian airship, the Austrians have been obliged to stop the manufacture of the large 305 mm. shell."

Reuter's correspondent at Athens on the 8th inst., reported :—

"A delayed message which has arrived here from Constantinople states that last week thirteen trucks of benzine, four trucks of sulphur, and four aeroplanes in sections arrived there *via* Bulgaria. All were concealed amongst hospital and medical material."

Mr. A. Beaumont, writing to the DAILY TELEGRAPH from Milan on the 9th inst., said :—

"Another instance recorded to-day is that of an Italian aviator, who, landing behind the enemy's lines, left an observation officer there to take notes, and returned to pick him up again after the latter had obtained all the information desired."

Writing from Chiasso on the 9th inst., the DAILY MAIL correspondent said :—

"An Austrian aeroplane appeared over Venice about eight o'clock yesterday morning at a height of 6,000 ft., and dropped eight bombs. One fell on an old house. One person was killed and several were injured. It is believed that the aeroplane dropped air torpedoes on their heads. The population preserved great calm. This was the fourth air raid on Venice."

"A neutral correspondent," writing in the DAILY MAIL of the 9th inst., regarding a visit to Brussels, said :—

"The most exciting incident of life in Brussels during June was the firing of Russian guns at British aircraft. The captured Russian field artillery had been posted outside the town to assist in the defence of the city against air raids, but during my visit I did not see any other prominent signs of defence."

"The airshed near Brussels destroyed by Allied airmen contained one Zeppelin, two Taubes, and a large supply of petrol. It has now been rebuilt. The worst loss, according to the Germans themselves, was the Zeppelin destroyed by Lieut. Warneford. German officers told the Mother-superior of the convent on which the wreckage fell, that they would 'rather have lost 5,000 men than the crew of that Zeppelin.' It contained some engineers who could not be replaced without four to five years' training."

The DAILY TELEGRAPH correspondent at Mitylene, writing on the 9th inst., describing a Turkish attack from Kum Kale, on the British encampment on the Gallipoli Peninsula, said :—

"During the night it was difficult to locate the guns the enemy had brought down, as their positions had been cleverly chosen to render them difficult of detection. When day broke, however, two of our aeroplanes flew over and located their positions, and our batteries on the European shore and a French battleship soon reduced them to silence."

Writing from Paris on Saturday an EVENING STANDARD correspondent said :—

"Although the details are being kept secret, the French Government is busy at present with the construction of a new type of aeroplane, which is expected to prove a formidable rival to the Zeppelins, especially in regard to the amount of explosives that can be carried."

"The new machines are expected to appear at an early date, thus marking another notable advance in aerial navigation."

"There has been hardly an improvement in the German aeroplanes since the beginning of the war," said a well-known French aviator, "but the aerial branch of the French army service has shown enormous progress."

"This but proves once more that the Germans are excellent imitators, but that, once left to their own devices, they are incapable of creating anything original. Their Taubes and Aviatiks are already behind the times, and as the war continues the Germans will become hopelessly outclassed in aerial equipment, despite their huge Zeppelins."

The German "wireless" on Sunday contained the following :—

"Our airmen attacked the railway at Gerardmer."

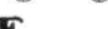
JULY 16, 1915.

In a message from Petrograd on the 11th inst., the MORNING POST correspondent said :—

"A thrilling aeroplane fight took place to the north of the Dniester positions the other day. The Russians marked down a German Albatros starting on a reconnaissance, and two aviators, Lieutenant Alexeit and Ensign Ivanov, promptly manned their Voisin plane and started in pursuit. For a score of miles the chase was continued. The Russians were then within a hundred yards of the enemy. A vigorous interchange of shots began. The Russians used light Maxims, the Germans replying with similar guns. Six shots were put through the Russians' aeroplane, but the aviators were untouched. On the other hand, the Russians mortally wounded the pilot and severely wounded the passenger in the German aeroplane, which, after describing a loop downwards, began to fall, swaying in the air. The Germans exchanged farewells as they went down. When their machine touched the ground it burst into flames, and by the time the Russian soldiers in the vicinity had reached the spot only charred fragments were left. The Russian aviators returned to their base uninjured."

Writing to the DAILY TELEGRAPH on Sunday from Milan, Mr. A. Beaumont said :—

"Italian aviators continue their daring raids on the Austrian military position and important railway junctions, and hardly a day passes but I hear of some fresh exploit. One of these has been on the railway line to Trieste at Nabersina, where an aviator dropped



CORRESPONDENCE.

Machine Tools Wanted for War Purposes.

[1905] The Committee of the Royal Automobile Club would be glad if any of your readers who are in possession of the machines specified below, and who are willing to offer them to the Machine Tool Department of the Ministry of Munitions (a) on loan to be returned after the War, (b) on hire or (c) for sale, would communicate with me.

Lathes (4½ in. centres and upwards).—The following particulars should be given: Height of centres; length of bed; whether (a) screw cutting or (b) sliding and surfacing or (c) sliding, surfacing and screw cutting; whether plain or gap bed; whether hollow spindle, if so, size of hole; makers' name if possible; condition; and age.

Milling machines with back gearing and automatic feed of not less than 12 ins.—The following particulars should be given: Makers' name; age; condition; length and width of table; length of automatic feed; particulars and size of any chucks available.

Only machines which comply with the above conditions should be reported.

The Committee of the Club expresses the earnest hope that anyone in possession of such machines will send particulars at once. All the information required as above should be sent to the Secretary



of the R.A.C. in order to avoid unnecessary correspondence and delay.

J. W. ORDE, Secretary.

Royal Automobile Club, London, S.W., July 12th, 1915.

Bombs for Destruction of Zeppelins.

[1906] It appears that an aviator attempting to destroy a Zeppelin is obliged to keep well above it for fear that his aeroplane might be overturned and wrecked by the force of the explosion of the immense gas-bag, should he succeed in dropping a bomb on it.

Would it not be possible to devise light darts which, when dropped, would stick in the envelope of the Zeppelin—each with a small bomb, with time-fuze attached, which would not explode for two or three minutes?

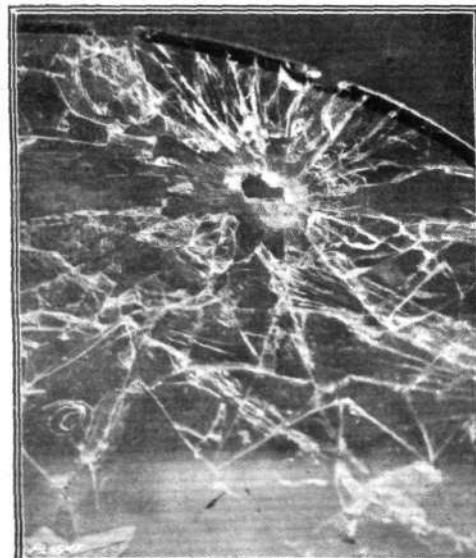
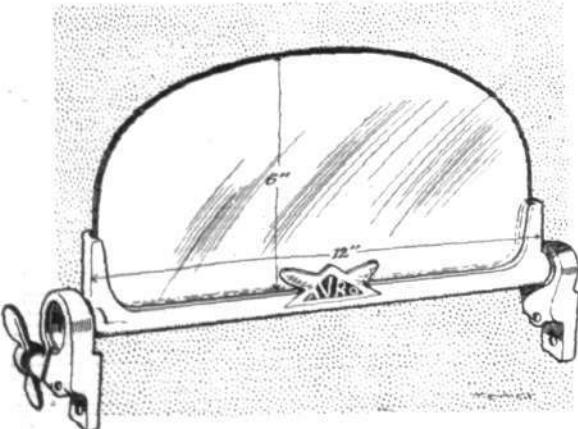
An aviator on a swift-flying aeroplane would then be able to sweep down close over the Zeppelin, drop on it two or three of these "banderillas," as they might be called in bull-ring parlance, and get away to a safe distance before the explosion took place. A very small bomb would be sufficient to ignite the gas, and, being light, a number of them could be carried and showered down on the Zeppelin. Should they miss, they would do far less damage to non-combatants below than the bombs now used.

ALFRED CLARK.

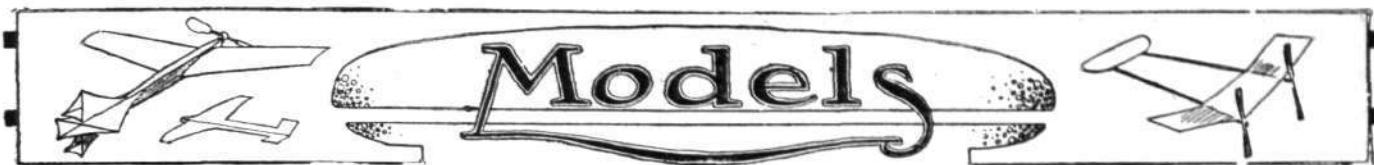
The Homestead, Christian Malford, Wilts.



AN OBJECT LESSON.



AN OBJECT LESSON.—On the left a sketch of a Triplex safety glass windscreens, as fitted to an Avro aeroplane. On the right, photo. of the Triplex glass windscreens after it had been through a gruelling in active service. In communicating with the Triplex Glass Co., the pilot of the Avro machine writes, under date of July 13th, as follows:—"Enclosed please find photo. of Triplex Wind Screen. The hole was made by a bullet, which entered from the right on the far side. Further details would be very interesting, but cannot be given. Some of the cracks at the bottom of the photo. were caused in transportation."

**Observations on Weather Conditions.**

It is very gratifying to hear occasionally from model enthusiasts in various parts of the country, especially when they send details of the way in which they work or the results obtained with different models. In this connection an interesting communication is to hand from Mr. Ronald W. Potts, of Sunderland, who says he is the only one in the district who flies models. Mr. Potts, some of whose notes on weather conditions appeared in our issue of June 18th, works in a very methodical manner. He generally has the assistance of a friend, but always keeps a record of each series of flights in a book, the notes including: type of machine, weather, wind, number of turns of motor, &c., and he adds to the usefulness of these by a rough diagram of the path taken by the model and a contour of the ground over which the flight was made.

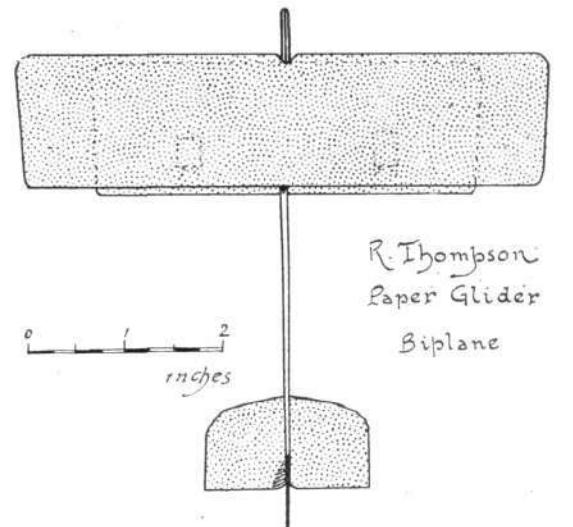
For winding up the motors he has a brace geared 5 to 1, and as his windings are generally 500, this means 100 times. He proceeds in the following fashion:—

"I hold the model, my friend gives 20 turns and nods his head; I shout 'One,' another 20 I shout 'Two,' and so on till I count 'Five.' This saves one person counting one hundred."

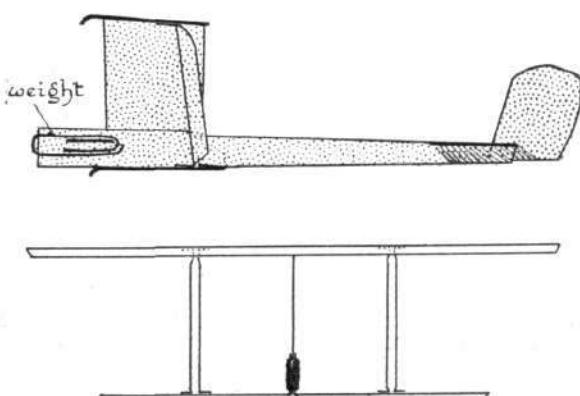
Paper Gliders.

Writing from Bristol, Mr. R. Thompson says:—

"Having been very successful in making paper models, I enclose two sketches—one of a parasol monoplane, and the other is a biplane. Both are exceedingly fine fliers, and fly indoors and out."



R. Thompson
Paper Glider
Biplane

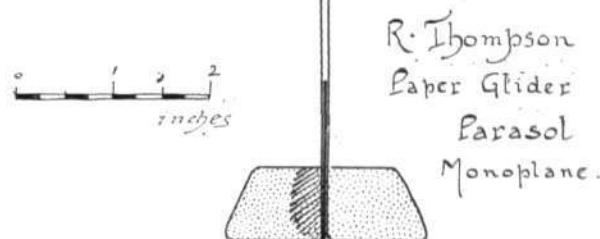
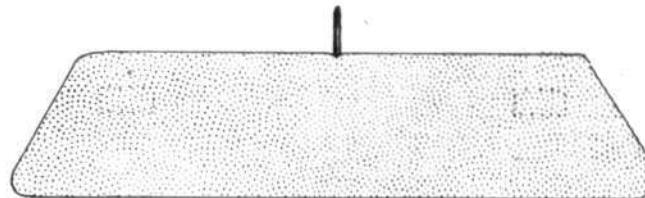


Mr. R. Thompson's paper glider biplane.

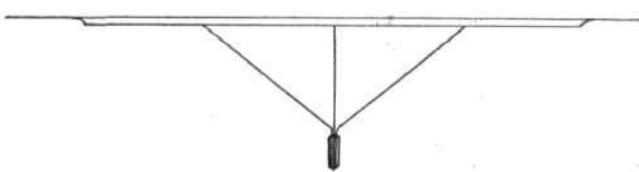
doors. If thrown very hard against the wind both fliers will loop the loop very gracefully, and sometimes follow up with a long glide. With the rudder turned, the models will bank, and also describe very large circles. The stability of both models is very good, and if held vertical at a height of about six feet from the ground, they

will recover very quickly. The biplane shows greater stability in the open than the parasol monoplane does, but in the room the parasol is by far the best flyer. I have also made a triplane and a quadruplane, both of which have flown exceedingly well.

"About a year ago I made a paper model of the German D.F.W. type, from which I had a freak flight. Launched from the hand, the model suddenly started ascending in large sweeping circles



R. Thompson
Paper Glider
Parasol
Monoplane.



Mr. R. Thompson's paper glider parasol monoplane.

until it had reached a height of about 40 ft., and from that height it glided about 100 ft. Probably the model was caught in an upward air current, and at the height mentioned must have freed itself from the current and commenced gliding.

"I am fourteen years of age, and I work at the aeroplane works here."

Illness of Mr. Johnson.

Readers of this section of *Flight* will regret to hear that Mr. V. E. Johnson, who has been in ill-health for some considerable time, has been ordered by his doctor to completely rest for several weeks. It is hoped that by this means he will be entirely restored to health. In the meantime arrangements have been made for the model section of *Flight* to be continued as before, but readers should note that all communications should be addressed to the Model Editor, *Flight*, 44, St. Martin's Lane, London, W.C. We take this opportunity of reminding readers that we are at all times pleased to hear from them and ready to do what is possible to assist them in their work.

A Glider Enquiry.

One of our readers enquires for the name and address of the model aeroplane club, nearest to Hammersmith, that is in possession of, or likely to build, a glider.

JULY 16, 1915.

THE GENERAL AVIATION CONTRACTORS, LTD.

The Business still Expanding.

THE fact that General Aviation Contractors, Ltd., and its subsidiary concerns have recently had to more than double their headquarters office accommodation at 30, Regent Street, provides an opportunity to again draw attention to the way in which nothing seems to hold back this business from expanding and developing. Founded in 1911, when the outlook for aviation was not by any means rosy, the business has more than justified not only the hopes of those who founded it but the lines on which they set to work. What were at first merely departments of the firm rapidly became so large and important that the organisation of separate companies became nothing less than a necessity. And so it was that the British Anzani Engine Co., Ltd., the British Emaillite Co., Ltd., and the General Aeronautical Co., Ltd., came into being as separate units. The spheres of the two first named are sufficiently indicated by their titles, whilst the third, which has taken over the familiar trade mark G.A.C., handles practically everything aeronautical in the way of accessories, tyres, clothing, instruments, &c. In fact they are in the position to supply immediately any article, within reason, for use in connection with Aviation.

Another development which fails to be recorded is the recent establishment of a dépôt in Paris, which must without doubt add considerably to the facilities at the disposal of the clients of the various companies.

The G.A.C. in Italy.

As in London, so in Milan. What was at first just an agency of General Aviation Contractors has now outgrown its parent until several separate companies have been deemed necessary to adequately deal with the different phases of the expanding business. It may be recorded that the headquarters of General Aviation Contractors, Ltd., in Italy—The Societa Generale Imprese Aeronautiche—are at 12, Via Silvio Pellico, the Piccadilly Circus of Milan. Not far away, at 9, Monte di Pieta, in the Milanese "Regent Street" as it were, are the offices and showrooms of the Agenzia Generale Forniture Aeronautiche, which has built up an important and growing business in accessories, tyres, clothing, &c., and is the firm corresponding to the General Aeronautical Co., Ltd., of London; in fact, the Italian "G.A.C." The A.G.F.A. Company was formed early in 1914, and as the business rapidly grew branch offices were opened in Rome, Turin and Venice. A distinct company, the Societa Italio Orientale Emaillite, now looks after the concession for the famous dope which is in as great a demand in Italy as at home, and



Parts for B.E. 2c Aeroplanes.

THE Blackburn Aeroplane and Motor Co., Ltd., Leeds, having extensively enlarged and equipped their works with machinery for the rapid production of parts of aeroplanes, especially for B.E. 2c machines, they are now in an admirable position, we understand, to supply and give good delivery of stampings, pressings, drop forgings, strainers, tanks, cowls, &c., for B.E. 2c aeroplanes. The accuracy and quality of the parts, up to standard, are guaranteed to pass any test required by the Government. The firm was one of the earliest to respond to the requirements of the Government for aeroplanes and aeroplane parts, and will no doubt receive support up to the full capacity of their plant.



PUBLICATIONS RECEIVED.

Military Aeroplanes. By Grover C. Loening. San Diego, Cal.: Signal Corps Aviation School.

Education (Scotland). Report for the Year 1914-15 by the Director, Sir T. Carlaw Martin, LL.D., F.R.S.E., on the Royal Scottish Museum, Edinburgh. Edinburgh: H.M. Stationery Office. Price 2d.



IMPORTS AND EXPORTS, 1914-1915.

AEROPLANES, airships, balloons, and parts thereof (not shown separately before 1910). For 1910 and 1911 figures, see *Flight* for January 25th, 1912; for 1912 and 1913, see *Flight* for January 17th, 1914; and for 1914, see *Flight* for January 15th, 1915:

	Imports.	Exports.	Re-Exportation.			
	1914.	1915.	1914.	1915.	1914.	1915.
	£	£	£	£	£	£
January ...	5,945	20,382	210	435	879	13,706
February ...	28,132	380	106	138	441	18,823
March ...	27,731	280	1,934	7,218	1,440	5,090
April ...	11,384	2,189	1,175	23,986	1,473	275
May ...	17,062	178	4,059	12,530	9,484	8,250
June ...	15,967	5,469	5,082	3,730	142	2,400
	106,221	28,878	12,566	48,037	13,859	48,544

moreover is now being produced in works which have been specially organised and equipped for the purpose, at Bovisio, about 12 miles from Milan. As its name implies, the activities of this company cover not only Italy but also the near East. It has its headquarters at Milan, with a branch office at Turin and agencies at Rome, Venice, Spezia, Athens, Belgrade, Sofia and Bucharest.

In addition, it will be remembered that the G.A.C. is very materially interested in the Savoia Co., which builds Farman machines under licence in Italy.

The G.A.C. in Australia.

MR. DELFOSSE BADGERY, who, our readers are aware, represents the G.A.C. interests in Australia, has enthusiastically and very successfully endeavoured to arouse his countrymen's interest in aviation by carrying out in all parts of Southern Australia, including Tasmania, numerous demonstrations of flying on his 45 Anzani-engined biplane, built just over a year ago. In order to bring the G.A.C. into greater prominence in the Antipodes, he is organising a school on up-to-date lines, and already a suitable ground has been acquired near Sydney. The initial school equipment will consist of three 40-45 h.p. six-cylinder and one 60-65 h.p. ten-cylinder Anzani-engined biplanes. This school, apart from the Government instruction centre, organised some considerable time ago by Capt. Petre and Lieut. Eric Harrison, will be the first really serious practical effort in this direction started in Australia, and all, we feel sure, will join in wishing the organisers of the enterprise every success. Incidentally, the G.A.C. are fortunate in being so energetically represented in our Southern Colony. But, on the other hand, all worry, so far as is possible, is saved Mr. Badgery by reason of the comprehensive nature and the system of organisation of the G.A.C. business. This may be judged from the fact that, in addition to the Anzani engines, Mr. Delfosse Badgery is ordering from the G.A.C. everything, except the wood, required for the construction of the four biplanes.

G.A.C. the World Over.

THE business of the General Aviation Contractors and its subsidiary companies extends to many other of our colonies and to foreign countries in all parts of the world. Besides being contractors to our own various Government departments, they have long been contractors to the Governments of France, Russia, Italy, United States, Norway, Sweden, &c., and it is rumoured that still further important extensions in England may shortly take place.



Aeronautical Patents Published.

Applied for in 1914.

Published July 15th, 1915.

- 2,896. JACOB LOHNER AND CO. Connection and disconnection of stay wires, &c., of aircraft.
 7,990. LUFT-VERKEHRS GES. Stability flaps.
 14,773. F. SCHNEIDER. Detachable fuel pump for aircraft.
 14,774. F. SCHNEIDER. Bodies and supporting planes for aeroplanes and floats and bodies for hydroplanes.
 14,877. SOC. DES ETAB. L. BLERIOT. Signalling and recording signals.

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